**University of Alberta**

*Identifying the Challenges Faced by the Parents of Overweight Children: A Qualitative Analysis*

by

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## Abstract

The purpose of this study was to gain a deeper understanding of the lived experiences of the parents of overweight children and the challenges these parents face. Data were collected via interviews with 21 parents recruited from the wait-list of the Pediatric Centre for Weight and Health (PCWH) at the University of Alberta Stollery Children's Hospital, Edmonton, Alberta. Findings revealed that parents lacked the skills and knowledge to promote healthy eating and physical activity. However, these parents attempted to influence their children's lifestyle behaviours by using contradictory strategies that reflected extremes of control (around diet and physical activity) and leniency (around food choices and screen time). Children lacked social support in their daily lives and this negatively impacted their weight management efforts. Parents wanted better help from health care professionals and policy/program level change. Implications arising from these findings are discussed.

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# CHAPTER 1. INTRODUCTION

There is overwhelming evidence that the level of childhood overweight has increased in almost all developed countries over recent years (Henderson & Ainsworth, 2001; O'Dea, 2004; Thompson, Baxter-Jones, Mirwald, & Bailey, 2002). More specifically, the increasing prevalence of overweight and obesity among Canadian children and youth is a public health concern. According to the 2004 Canadian Community Health Survey (CCHS), more than one quarter (26%) of young Canadians, aged two to 17 years old, are overweight or obese (Shields, 2006).

Due to the multitude of potential causes, the treatment of childhood overweight has become more and more multifaceted. Although the treatment of childhood overweight is complex, researchers recognize that one crucial component of treatment programs must be parental involvement (Golan & Crow, 2004b). For instance, parents play an important role in shaping children's dietary, physical activity, and sedentary behaviour patterns (Davison & Birch, 2001). According to Golan & Crow (2004b), parents should be considered the primary agents of change when it comes to weight loss treatment for children, and interventions should be targeted at parents. However, a recent review of interventions by Flynn et al. (2006) demonstrated that fewer than 5% of intervention programs were family-based and implemented in the home.

The assumption behind family-based interventions is that parental support, family dynamics, and the home environment each play a significant role in treatment outcomes. For instance, Veugelers and Fitzgerald (2005) demonstrated that family-based factors (e.g., family meals) are associated with the risk of childhood overweight and weight management interventions should be targeted at the family environment. A recent review

of risk factors for overweight in preschool children (Hawkins & Law, 2006) suggested that prevention tactics should focus on parents and should begin as early as infancy.

Although several studies have examined the correlates and determinants of childhood overweight (e.g., Hawkins & Law, 2006), evidence of effectiveness in weight management through working against these correlates and determinants is limited (Flynn et al., 2006). Furthermore, few studies have actually asked parents of overweight children about the challenges parents face (Potvin et al., 2003). A need exists for solutions that take into account the everyday challenges faced by parents of overweight children that hinder the promotion of a healthy lifestyle for all family members. Interventionists are now realizing the importance of consulting with potential participants before developing programs (Poitvin et al., 2003). Despite the focus of healthy eating and physical activity in childhood weight management, it is possible that much of the support parents require is around basic parenting skills (Barlow & Dietz, 1998; Stein et al., 2005). According to Kremers et al. (2003) authoritative parenting, in which parents provide autonomy-supportive choices while maintaining firm structure, rather than authoritarian parenting, in which parents show controlling behaviours, is more effective in a child-feeding model. Thus, educating parents in authoritative methods of parenting may be an effective strategy for childhood weight management.

Understanding more about parenting practices and the challenges of the parents of overweight children may better equip interventionists to develop appropriate interventions and provide guidance to health care practitioners. With a shortage of interventions taking place in the home, it is essential that researchers try and develop a

better understanding of this environment and the programs that are the most effective (Flynn et al., 2006).

## Purpose

The purpose of this study was to gain a deeper understanding of the lived experiences of the parents of overweight children and the challenges these parents face. It was part of a larger project identifying the treatment challenges and preferences of overweight children and their families with the goal being to inform the design of effective family-based weight-loss interventions. More specifically, to inform the interventions and health research services already available to overweight children at the Pediatric Centre for Weight and Health (PCWH) at the Stollery Children's Hospital in Edmonton, AB.

This study addressed the following research questions:

(1) What challenges do the parents of overweight children face in managing weight across a range of social environments (including school, out-of-school, neighbourhoods and family home)?

(2) What types of assistance do the parents of overweight children feel they require in order to help children lose and manage weight?

## Limitations

The small, primarily Caucasian, sample limits the generalizability of the findings. Furthermore, by recruiting participants from the wait-list at the PCWH, we interviewed parents who already identified their child as overweight and were taking a step towards seeking treatment. These parents were all clearly concerned with their child's weight. At

the time of the interviews, these families were all waiting to participate in a weight-management program at the PCWH. Although this provided us with the specific subgroup that we were interested in (i.e., the parents of overweight children), it may not be a representative sample of all the parents of overweight children in the Capital Health Region (i.e., Edmonton, AB and area). Nevertheless, our findings can be applied to similar families entering the programs at the PCWH in the future.

Another limitation was that primarily mothers attended the majority of interview sessions. As both parents were invited, this may reflect a limited involvement of the fathers in their child's weight management. However, it would still have been useful to include more fathers' perspectives in our results.

Finally triangulation was done using two self-reports (i.e., parent and child), with no objective measure of behaviours (e.g., parenting) for verification. However, steps were taken to limit the amount of response bias. The child and parent were separated for their individual interviews, assured of the anonymity of the study, and informed that their honest answers would lead to better programs at the PCWH for which they were on the wait-list. The practical limitations of the study included the amount of time needed to transcribe and analyze the data.

## Definition of Key Terms

### *Body Mass Index*

The body mass index (BMI) is a person's weight in kilograms (kg) divided by their height in meters (m) squared (BMI = weight (kg)/height $(m)^2$) (Dietitians of Canada et al., 2004). The result is a measurement of the relative percentages of fat and muscle mass in the human body.

*Childhood Overweight*

Defining and categorizing body weight status for children and adolescents is complicated by variability in growth rates and gender-specific variations in body composition at different maturational stages (Flynn et al., 2006). Overweight and obesity are often used interchangeably when dealing with childhood weight issues. When dealing with children it is important to attempt to limit their exposure to negative stereotypes associated with the term "obesity" (Barlow & Dietz, 1998; Thompson et al, 2005). According to Latner and Schwartz (2005), overweight children can face weight bias from multiple sources, including peers, health professionals, family members, and teachers. This can undermine friendship formation, lead to harsher forms of victimization, decrease the child's quality of life, and result in adverse psychological consequences such as low self-esteem. Protecting children from weight stigma is a major concern (Latner & Schwartz, 2005). Furthermore, weight bias becomes even more complicated for teenagers. During adolescence, as the body undergoes many physical changes, added attention is given to teenagers' physical appearance, affecting body image and self-identity (Neumark-Sztainer & Eisenberg, 2005). According to the 2000 Centers for Disease Control and Prevention (CDC, 2000) growth charts, at risk of overweight for children and adolescents aged two to 20 years is defined as a BMI-for-age at or above the 85$^{th}$ percentile and below the 95th percentile. Overweight in children is defined as a BMI-for-age at or above the 95th percentile on the charts. Dietitians of Canada et al. (2004) have recommended these 2000 CDC charts for monitoring the BMI of Canadian children.

Due to the difficulty in comparing and monitoring international trends in child obesity, the International Obesity Task Force (IOTF) also developed specific standards

(Cole, Bellizzi, Flegal, & Dietz, 2000). This definition of childhood overweight and obesity was designed to closely reflect the adult BMI cut-off points of 25 $kg/m^2$ (overweight) and 30 $kg/m^2$ (obese). These cut-off points rise incrementally with every year of age. The IOTF guidelines are recommended for international comparisons or comparisons of different groups, while the CDC guidelines are recommended as a tool for clinical purposes. Since the sample for this particular study was recruited from a clinical setting, the CDC (2000) definition for overweight was adopted.

Throughout the literature review, the terms overweight and obesity or at risk of overweight and overweight will be used as stated by the study being reviewed. In such cases, BMI definitions have been provided for clarification. The reader should assume that throughout this paper the reference to $85^{th}$ and $95^{th}$ percentile refer to at risk of overweight and overweight, respectively, unless otherwise specified.

# CHAPTER 2. REVIEW OF LITERATURE

## *Prevalence of Childhood Overweight in Canada*

Canada has recently experienced a major epidemic of obesity, with the population prevalence more than doubling between 1985 and 1998. For the years 1985, 1990, 1994, 1996 and 1998, the incidence of obesity was 5.6%, 9.2%, 13.4%, 12.7% and 14.8% respectively. Thus, 3.3 million Canadian adults were reported as obese in 1998. Canada should be concerned as a nation because the obesity issue does not appear to be limited to one particular region, all provinces experienced increases in the prevalence of obesity (Katzmarzyk, 2002).

In addition, childhood obesity has also reached epidemic proportions in Canada (Tremblay, Katzmarzyk, & Willms, 2002). In fact, the rate of increase in childhood obesity has surpassed that of adult obesity in Canada (Tremblay et al., 2002; Willms, Tremblay, & Katzmarzyk, 2003). Childhood obesity is ubiquitous throughout Canada (Willms et al., 2003). Specifically, between 1981 and 1996 the Canadian rates of overweight and obesity increased substantially among children and adolescents. Looking particularly between the ages of two and 16 years, the prevalence of overweight (BMI > $85^{th}$ and $\leq 95^{th}$ age and sex-specific percentile) in boys increased from 15% to 28.8% and from 15% to 23.6% in girls(Tremblay & Willms, 2000). Furthermore, the incidence of obesity (BMI > $95^{th}$ age and sex-specific percentile) more than doubled from 5% to 11% and from 5% to 13% respectively in boys and girls.

Recently, the 2004 Canadian Community Health Survey (CCHS) did direct measures of height and weight with a representative sample of Canadians, which were then compared to data from the 1978/79 Canada Health Survey (CHS; Shields, 2006).

This data allowed for a comparison of overweight and obesity among Canadian children over the span of 25 years. In 1978/79, 12% of the representative sample of two to 17 year olds were overweight and 3% were obese (according to the IOTF cut-points; Cole et al., 2000). By 2004, the numbers jumped to 18% overweight and 8% obese (Shields, 2006). Stated differently, in 2004 more than 1.6 million Canadian boys and girls were considered overweight or obese. That is more than one-quarter (26%) of the Canadian population of two to 17 year olds (Shields, 2006). However, according to Shields (2006) the most notable increase in overweight and obesity was among 12 to 17 year olds, whose combined overweight/obesity rate has more than doubled, while their obesity rate has tripled. These data demonstrates epidemic increases in childhood overweight.

*Negative Health Consequences of Childhood Overweight*

The growing problem of childhood overweight may result in serious negative effects for the Canadian population. According to the World Health Organization (WHO; 2002) being overweight is one of the greatest risk factors for chronic disease in the 21st century. Obesity is a risk factor for four of the 10 leading causes of death in Canada – coronary heart disease, type 2 diabetes, stroke and cancer (Farley & Cohen, 2001) which account for more than 300,000 deaths each year (Kiefer, 2002). The risk factors of obesity, coronary heart disease, type 2 diabetes, stroke and cancer are now identified in children, with almost 60% of overweight 5 to 10 year old children having at least one additional risk factor for cardiovascular disease (CVD) in addition to being overweight (Freedman, Dietz, Srinivasan, & Berenson, 1999). Overweight is associated with a number of comorbidities in children and children are now experiencing similar effects of overweight as those faced by adults (Daniels et al., 2005).

One comorbidity is the metabolic syndrome, also known as the insulin-resistance syndrome (Daniels et al., 2005). A combination of genetic and environmental factors is believed to be the cause of this syndrome, which includes traits such as hyperinsuleinemia and hypertension. Some of these factors include excess calorie intake and reduced levels of physical activity. This syndrome has a tremendous negative effect on CVD risk in youth.

Furthermore, increased total body and abdominal fat in overweight children are related to risk factors for type 2 diabetes and CVD (Ball, Marshall, & McCargar, 2003). Although type 2 diabetes was once primarily a disease of adulthood (Daniels et al, 2005), Ball et al. (2003) revealed that 29% of overweight children in the Edmonton-area possessed at least two risk factors for type 2 diabetes and CVD. Although more research is needed in the area of childhood and adolescent type 2 diabetes, if the risks are similar to those in adults, children with this disease may experience adverse cardiovascular outcomes as early as 30 years of age (Daniels et al., 2005). According to Dietz (1998), as obesity becomes more common in children and adolescents, the risks of weight-related complications in adulthood will increase. With evidence highlighting later complications in adulthood and CVD being identified as the "single leading cause of death worldwide" (Strong, Mathers, Leeder, & Beaglehole, 2005, p. 1578), a definite need exists to develop more knowledge in the area of pediatric weight management.

Several studies have also found a positive relationship between obesity and asthma in children (Jain, 2004). In addition, type 1 diabetes, low-level systematic inflammation, obstructive sleep apnea, and structural abnormalities of the foot in children

have been linked to obesity. According to a review, as the prevalence of obesity increases it is likely that health consequences will increase in children and adults (Jain, 2004).

A relationship also exists between psychosocial abnormalities and childhood overweight. However, it is unclear as to which way this complex relationship works (Daniels et al., 2005), as overweight has yet to be distinguished as either the cause or affect in this relationship. Compromised peer relationships complicate the association between psychosocial abnormalities and overweight by possibly acting as a primary mediator (Daniels et al., 2005; Latner & Schwartz, 2005). Overweight children have been shown to have fewer friends and their relationships are usually more isolated and peripheral to the central networks formed by children of 'normal' weight. In addition to having fewer friends, overweight children are also vulnerable to harsher forms of bullying, teasing, and victimization, which have also been linked to psychosocial abnormalities (Daniels et al., 2005; Latner & Schwartz, 2005). Furthermore, overweight has been associated with lower self-esteem, which is in turn associated with greater sadness, loneliness, and nervousness (Latner & Schwartz, 2005). Latner and Schwartz (2005) suggest that these negative psychosocial outcomes may primarily be the consequence of other people's negative reactions to excess body weight.

*Costs of Childhood Overweight*

The obesity epidemic places a significant burden on the Canadian health care system (Katzmarzyk & Mason, 2006). The total direct cost of adiposity related diseases for Canadian adults exceeded $1.7 billion in 1997 (Birmingham, Muller, Palepu, Spinelli, & Anis, 1999). In 2001, the total direct health care costs attributable to obesity in Canada jumped to $4.3 billion, or 2.2% of total health care costs (Katzmarzyk & Janssen, 2004).

Moreover, it was estimated that $2.1 billion of Canadian health care costs was directly attributable to physical inactivity in 1999 (Katzmarzyk, Gledhill, & Shephard, 2000). The results of an analytical review indicated that the cost of physical activity in Canada increased to $5.3 billion, or about 2.6% of total health care costs in 2001 (Katzmarzyk & Janssen, 2004). These figures confirm that physical inactivity and obesity contribute significantly to the public health burden in Canada and provide evidence for the need to reduce both of these contributing factors. The treatment of childhood obesity could be a strategy for preventing such high health care costs by preventing adult obesity (Daniels et al, 2005); because the severity of adult obesity appears to be associated with the severity and persistence of childhood overweight (Dietz & Robinson, 2006). A similar situation in the US resulted in an increase in adiposity-related annual hospital costs for children from $35 million in 1979 to $127 million in 2000 (Wang & Dietz, 2002). Pediatric obesity is a problem that is not only increasing in size but in expenses as well.

*Correlates of Childhood Overweight*

Complicating the treatment of childhood obesity is the fact that researchers have identified so many different correlates (see Appendix A). For example, several researchers have identified increased parental weight as a strong correlate of childhood overweight (e.g., Berkowitz, Stallings, Maislin, & Stunkard, 2005; Dubois & Girard, 2006; Fuentes et al., 2003; Strauss & Knight, 1999). As parental weight increases, so does a child's risk of being overweight. For example, Dubois & Girard (2006) found that the odds of a child being overweight at 4.5 years doubled for children with one overweight or obese parent and tripled for children with two overweight or obese parents.

Evidence such as this demonstrates the significance of parental weight and parental involvement in childhood weight management.

Secondly, birth weight has been determined as a correlate of childhood obesity. Several studies have shown that as birth weight increases, so does the likelihood that a child will be overweight (eg., Burdette, Whitaker, Hall, & Daniels, 2006; Burke et al., 2005; Mamun et al., 2005). Burke et al. (2005) showed that birth weight significantly predicted BMI at age 8 years with a positive relationship. It appears that weight management may have to begin way before mothers give birth in order to combat high birth weights.

Socioeconomic status (SES) has also been linked to childhood overweight. Research has shown that as SES decreases, childhood overweight increases (e.g., Berkowitz et al., 2005; Dubois & Girard, 2006; Grummer-Strawn, & Mei, 2004). For example, Berkowitz et al. (2005) illustrated that low family income was an independent correlates of accelerated weight gain. Similarly, Veugelers and Fitzgerald (2005) also found that obesity rates were twice as prevalent in low-income neighbourhoods as in high-income neighbourhoods. Evidence linking SES to childhood overweight demonstrates the need to target lower-income neighbourhoods when addressing the issue of childhood overweight.

Physical inactivity has also been linked to obesity (e.g., Rose & Bodor, 2006; Sugimori et al., 2004; Vogels et al., 2006). For example, Vogels et al. (2006) demonstrated that physical inactivity was significantly related to the percent body fat of children. Likewise, Veugelers and Fitzgerald (2005) found a prominent association between obesity levels and the frequency of physical education classes in Nova Scotia

schools. These findings demonstrate the need for policies that increase the frequency of physical activity and physical education classes. Furthermore, the ecological model of Physical Activity (EMPA) suggests that physical activity behaviour is influenced by a combination of environmental, biological and psychological factors (Spence & Lee, 2003). According to the EMPA, behaviour is influenced by the interactions between the individual and others within their environment, including family, peers and classmates. The influence of others is moderated by higher, broader systems, such as neighbourhoods or culture, which the individual is situated within. Thus, a child's level of physical activity can be influenced by both the verbal support from parents as well as the access to play areas at school. Consequently, influences of physical activity and its possible link to overweight are no simple task to define, as there are many complicated interactions that must be considered.

Finally, television viewing time (or screen time) has been linked to childhood overweight (e.g., Ariza, 2004; Datar, 2004; Rose & Bodor, 2006). For example, Rose and Bodor (2006) found that watching television for more than two hours per day increased the likelihood of childhood overweight. A television study by Jordan et al. (2005), showed that 63% of their sample (N=180 parents) had a television in their child's bedroom, and only about a quarter of parents had specific rules to limit the time spent watching television. Targeting a decrease in television time could be a possible form of intervention. A summary of the correlates of childhood overweight can be found in Table A1.

When examining the correlates of childhood overweight, it is important to take into consideration the role of the parents. Parental involvement is vital as parents have the

majority of the control and influence in their young children's lives, especially in the home environment (Fulton et al., 2001; White et al., 2004). The home environment, which includes parental behaviour, may have a strong impact on the management of childhood overweight. The shaping of children's eating and physical activity behaviours primarily takes place in the home environment (Swinburn & Egger, 2002). The home environment is where a child first develops health-related habits. Parents play a crucial role in ensuring that these habits reflect sensible eating and a physically active lifestyle (Golan, 2006; Fulton et al., 2001; White et al., 2004).

A child's eating behaviours are a reflection of those modeled by his or her parents. That child's eating behaviours are also limited by the foods provided by his or her parents. Furthermore, a child's physical activity behaviours are also a reflection of those modeled by parents (Barlow & Dietz, 1998). According to the Committee on Prevention of Obesity in Children and Youth (Koplan et al., 2005), sedentary behaviour tends to take place at the family level. If parents are sedentary their child tends to be sedentary as well. Parents should eat healthy and participate in physical activity so that they act as positive role models to their children.

Families can be categorized as "obesogenic", in which physical activity is low and caloric or fat intake are high; or "leptogenic", where parents make physical activity and healthy eating a priority (Swinburn, Egger, & Raza, 1999). More specifically, Swinburn and colleagues (1999) define an obesogenic environment as the "sum of influence that the surroundings, opportunity, or conditions of life have on promoting obesity in individuals or populations" (p. 564). A leptogenic environment would be the opposite of obesogenic. A deeper understanding of the challenges of creating a leptogenic

environment is needed. Although the population has been made aware of healthy choices through educational messages (e.g., Craig, Cragg, Tudor-Locke, & Bauman, 2006) people often struggle within environments that promote high energy intake and low energy expenditure. The challenge is to create an environment that supports healthier decisions (Swinburn et al., 1999). Maintaining a healthy lifestyle appears to be easier said than done, and parents feel that they require more skill in making healthy choices (Lenk et al., 2006). Common challenges faced by parents in child weight management include others outside of the immediate family who interfere with the changes that the family is making (e.g., grandparents), eating outside of the home environment, insufficient time for physical activity and adequate food preparation, and a lack of a safe environment for children to engage in physical activity (Barlow & Dietz, 1998, Koplan et al., 2005).

Davison and Birch (2001) have proposed an ecological model of childhood overweight in which childhood overweight is influenced by characteristics of the child (i.e. age, gender, or physical activity) and risk factors that interact with parenting styles and family characteristics. According to Davison and Birch (2001), child characteristics include dietary intake, sedentary behaviour, and physical activity. These characteristics are modified by the child's gender, age and familial susceptibility to weight gain. Parenting styles and family characteristics then encompass and interact with child characteristics. Some child characteristics include child feeding practices, nutritional knowledge, parent food preferences, parent activity patterns, and family television viewing. The community, demographic, and societal characteristics that interact with these parenting styles and family characteristics include, ethnicity, work hours, accessibility of recreational facilities, school physical education programs, and

socioeconomic status. This framework attempts to account for the inconsistencies in research that do not consider the interactions between child characteristics, dietary patterns, and weight status, as well as the contexts that influence the development of eating patterns, and the processes by which these patterns emerge (Davison & Birch, 2006). It also demonstrates the important role that parents play in managing childhood overweight.

*Children's Attitudes and Perceptions Toward Childhood Overweight*

Maximizing family involvement and interaction is important so that children do not have to handle weight issues on their own, as it is the psychosocial consequences of childhood obesity that are most prevalent. At a young age, obese children become the targets of systematic discrimination (Dietz, 1998). For example, leaner, physically successful children often exclude overweight children from physical activities. When this occurs being only moderately overweight can pose a problem for children. They may experience deficits in physical functioning and may find themselves rejected by their peers, causing them emotional distress (Baranowski et al., 2000).

Popular culture places a high value on thinness and displays negative connotations towards people who are overweight (Schwartz, O'Neal Chambliss, Brownell, Blair, & Billington, 2003). Overweight adults often avoid health services because they dread being lectured about their weight and do not view the healthcare environment as being 'fat friendly' (O'Dea, 2005; Schwartz et al., 2003). Children are not immune to this prejudice. With the rising level of obesity, negative attitudes are being directed towards a larger number of children. When shown an obese person's silhouette, children 6 to 9 years old would describe them as lazy, lying, or cheating (Cassell, 1995).

Situations like this can cause obese children to become uncomfortable with themselves, with health professionals, or with physical activity, possibly resulting in discontinued participation.

*Sedentary Behaviour*

A lack of participation in physical activity is another important factor to consider when developing interventions for overweight children. According to Koplan et al. (2005), sedentary behaviour tends to take place at the family level: If parents are sedentary their children tend to be sedentary as well. Evidence suggests that physical inactivity can lead to a plethora of health problems, including coronary artery disease, stroke, colon cancer, breast cancer and type 2 diabetes (Katzmarzyk et al., 2000). Katzmarzyk et al. (2000) estimate that 21 340 prematurely lost lives in Canada each year could theoretically be saved if physical inactivity was eliminated. In response to these risks, Health Canada (2002) recommends that youth decrease sedentary time starting with 30 minutes less per day, gradually building up to an eventual 90 minutes less per day.

Decreasing sedentary activity is made difficult by the constant struggle between active and sedentary behaviours. Studies have given insight into the complexity of this struggle, showing that not only are the active and sedentary activities competing with each other, but they each have different reinforcing values (Fulton et al., 2001). This means that children may not be willing to trade a sedentary activity for an active one because they believe the sedentary activity has more value. Furthermore, a highly favoured activity does not necessarily correlate with a high cost of the behaviour when a child is denied access to it (Fulton et al., 2001). Meaning that it is difficult to know how a child will react each time a highly favoured activity is taken away because children can

be unpredictable. Therefore, more information is needed to determine what reinforcing factors are behind children's behaviour choices before they can be successfully altered.

Epstein et al. (1998) suggest that physical activity could be increased by increasing the relative reinforcing value of physical activity relative to the reinforcing value of sedentary activity. Either increasing the reinforcing value of physical activity or decreasing the reinforcing value of sedentary activity would achieve this. Thus, when designing interventions, the reinforcing value of sedentary behaviour must be understood and then considered.

Evidence shows that reinforcing decreases in sedentary behaviour instead of just increases in physical activity allows children an opportunity to choose to replace that sedentary activity with something more active (Epstein et al., 1998). The ability to make this choice can give children a sense of control over their behaviours and possibly increase adherence to newly adopted physical activities (Wrotniak et al., 2005). The next step is finding a way to successfully provide healthy choices to children so that they are able to exercise their right to choose and adhere to these healthy choices.

*Adherence*

Adherence plays an important role in the success of weight management (Flynn et al., 2006). For instance, Denzer, Reithofer, Wabitsch, & Widhalm (2004) report a 30% drop-out rate between each scheduled visit in their obesity management program. Given that behaviour change is complex and adherence is difficult, a better understanding of the factors that influence these changes is needed (Epstein et al., 1998). Perhaps it is unrealistic to expect families to adhere without teaching them to master behaviour change before treatment begins.

White et al. (2004) have shown that child adherence to weight loss programs is associated with parental adherence. Thus, an overweight child's behaviours are just one part of the family dynamic that effects weight management (Davison & Birch, 2001). With young children, it is evident that parents are the primary agents of change, role models, as well as providers. Thus, the parental responsibility to provide healthier choices for their child is a big one that parents must be ready to tackle. It is becoming clear that childhood overweight is an issue that involves the entire family, not just the overweight child (Koplan et al., 2005). When parents are eating fruits and vegetables and drinking milk, these healthy food choices are made available to their children. Furthermore, parents who are active will typically provide opportunities and support for their child to be active.

Becoming a successful agent of change and developing new, healthier behaviours is not easy and can result in relapse. Relapse is very common in obesity treatment and very difficult to understand (Doak et al., 2006; Epstein et al., 1998). The goal of a weight management intervention is to have parents and children walk away from treatments with newly acquired skills and mastered behaviour changes. If the intervention is successful, these new skills and behaviour changes will exist, however they do not necessarily replace the old ones. The reappearance of these old "habits" plays a role in relapse, resulting in an apparent ineffectiveness of the intervention (Epstein et al., 1998; Flynn et al., 2006).

Many factors regarding obesity treatment remain unclear. Whether parents should be given general parenting skills or training focussed on the specific diet and physical activity skills, as well as whether these parenting skills span across time or need to be

specific to each age group (Doak, 2006; Epstein et al., 1998; Flynn et al., 2006). More knowledge about the role that parents play as motivators is needed.

Another question asks whether the skills that parents receive through interventions are being applied successfully. An optimal number of intervention sessions needed for successful behaviour change while considering the convenience and schedule needs of various families is needed. Finally, what is the optimal combination of skills, behaviours, and knowledge to be delivered in these intervention sessions (Epstein et al., 1998)?

It is difficult to provide a standard intervention to groups that will result in effective treatment for each individual (Epstein et al., 1998). A better assessment is needed to understand how to appropriately target overweight children and their families with successful treatment (Doak et al., 2006; Flynn et al., 2006). The qualitative interviews in this study were aimed at providing a better assessment.

*Family-Based Interventions*

Much of the knowledge development in pediatric weight management needs to examine the use of family-based interventions (Hawkins & Law, 2006). According to a recent review of interventions and programs, the education and active involvement of parents should play a key role in future interventions in order to address the psychological and environmental influences of the home environment on childhood obesity (Doak, Visscher, Renders, & Seidell, 2006). Similarly, the Committee on Prevention of Obesity in Children and Youth claims that "[a] child's health and well-being is fostered by a home environment with engaged and skilful parenting that models, values, and encourages sensible eating habits and a physically active lifestyle" (Koplan,

Liverman, & Kraak, 2005, p. 335). Furthermore, in the five guiding principles of treatment of childhood overweight summarized by Daniels et al. (2005), involving the family or major caregivers of the child is the second principle. Family plays an important role in treatment outcomes because if the family is not ready to support the overweight child through a weight management program, success is unlikely (Dietz & Robinson, 2006). Similarly, initiating treatment with unmotivated adolescents may increase their resistance to change.

Epstein and colleagues (1994, 2004) have shown that multi-disciplinary family-based behavioural programs are associated with weight reduction. These types of "lifestyle" programs have been shown to be more effective in reducing percent overweight than aerobic exercise programs (Fulton, McGuire, Caspersen, & Dietz, 2001). Family-based programs must take into account behavioural (e.g., habits, emotions, cognitions, attitudes and beliefs) and environmental influences in overweight as these factors influence both energy intake and energy expenditure (Thomas, 2006). However, such family-based intervention programs are scarce and must accommodate the specific needs of overweight children and their families (Bosch, Stradmeijer, & Seidell, 2004; Zametkin, Zoon, Klein, & Munsun, 2004). More research into the precise factors (i.e. type, intensity, duration) that will make these lifestyle programs effective in the long run is needed (Epstein, Myers, Raynor, & Saelens, 1998; Fulton et al., 2001). Currently these factors, along with the optimum level of parental involvement, remain difficult to pin point.

Wrotniak, Epstein, Paluch, & Roemmich (2005) point out the importance that parent modelling and adherence plays in weight loss and weight management. According

to White et al. (2004), the family context itself plays a pivotal role in treatment effectiveness. Potential areas in the home environment that could be targeted through treatment include the types of foods available and served in the home, the parents as role models for healthy eating and physical activity, as well as family habits such as eating dinner in front of the television (Swinburn & Egger, 2002).

Although the primary benefit of childhood overweight management interventions is the reduction of children's weight, including parents in weight management behavioural strategies may lead to parental weight loss as well. When these parents lose weight, their children lose weight (Wrotniak et al., 2005). Successful weight management for these families may be due to the parents' adherence to healthy behaviours as well as the adoption of newly acquired parenting skills. These behavioural changes benefit the family environment while providing excellent role modeling to their overweight children (Wrotniak et al., 2005).

A recent summary of 'best practice' recommendations demonstrates that fewer than 3% of obesity programmes have been implemented in the home (Flynn et al., 2006). Although the health care system emphasizes short-term acute care, insufficient for the long-term needs of overweight children, support for family-based weight management programs that teach long-term self-management skills in nutrition and behaviour management is lacking (Daniels et al., 2005). Implementation of interventions in the home needs to increase if we want to see parents and families involved in overweight management. However, the home environment is difficult to influence through intervention due to large numbers and the uniqueness of every home environment. Furthermore, the methods for accessing people in their homes are limited (e.g., through

television; Swinburg & Egger, 2002). It is necessary to take steps towards developing weight loss interventions that are tailored towards family's needs and the specific challenges they face while maximizing family involvement. Furthermore, developing these family-based interventions around a social cognitive theory may help to evaluate the interventions' effectiveness.

*The Role of Theory*

The transfer of research findings into practice can be difficult. An increased use of social cognitive models in the development of interventions to change health behaviours has been an important advancement in recent years (Conner & Norman, 2005). According to Daniels et al. (2005), obesity prevention programs are more apt to be successful if they are based in theory. During implementation, theory-based interventions allow for the formal examination of important causal interactions (Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005). However, precise descriptions of theoretical approaches in pediatric weight management are rare (Jonides, Buschbacher, & Barlow, 2002). In addition to requiring more interventions where parents are taken into consideration when treating childhood overweight, a review by Hawkins and Law (2006) demonstrated that few studies have based their study of risk factors on a theoretical model. There is a need to explore different theories to determine which are most useful when developing family-based pediatric weight management interventions.

According to Bandura (1977) cognitive processes play an important role in the attainment and maintenance of new behaviour patterns. Social Cognitive Theory (SCT) would suggest focussing on parents as role models, offering social support to their children, fostering a healthy lifestyle and providing a positive environment (Bandura,

1977; Luszczynska & Schwarzer, 2005). Nevertheless, Self-Determination Theory (SDT) seemed a natural fit due to the fact that the weight management of obese children requires a high level of willingness and determination from both the child and the parents to participate in and commit to a time-intensive treatment (Denzer et al., 2004).

*Self- Determination Theory (SDT)*

SDT is based on three innate psychological needs that exist across cultures: competence, autonomy and relatedness. When these three needs are satisfied or supported by social contexts, the result is enhanced self-motivation and well-being (Deci & Ryan, 1985; Ryan & Deci, 2000).

The first need, competence, relates to ones ability to perform or master a task (Grolnick, Deci, & Ryan, 1997). This idea reflects people's desires to participate in activities that they feel they are "good" at and can succeed in; a natural avoidance of negative outcomes. This relates back to the idea of ensuring that parents and children have mastered new behavioural changes before assuming that they will be able to adhere to these changes once they walk away from an intervention (Epstein et al., 1998). According to SDT, if these children and parents do not feel competent in performing new behaviours their well-being will not be enhanced (Deci & Ryan, 1985; Ryan & Deci, 2000).

The second psychological need, autonomy, is the fundamental desire to feel that you have initiated and regulated your own behaviour (Grolnick et al., 1997). According to SDT, a person is autonomous when they believe that their behaviour is willingly performed and when he or she fully supports the actions in which they are engaged, as well as the values being expressed by these actions. Thus, people are most autonomous

when they act in concurrence with their true interests or integrated values and desires (Deci & Ryan, 1985; Ryan, 1995). Autonomy is not to be confused with independence; detaching yourself from others and doing everything on your own. One can make choices on their own while still depending on others for support. This is where being related to others plays an important role. Relying on someone else for emotional support can serve to support one's sense of autonomy (Chirkov, Ryan, Kim, & Kaplan, 2003; Grolnick et al., 1997).

Research has shown that along with parental modeling, weight loss in children was related to child adherence to autonomous tasks such as daily weighing and planning ahead (Wrotniak et al., 2005; White et al., 2004). These children played an active role in their weight loss and management, giving them a sense of control over what they ate and the activities they chose. Parents can have an autonomy-supportive influence on their children's eating habits, and physical and sedentary activity by controlling the availability of healthy food choices and opportunities (Golan & Crow, 2004a).

The third and final psychological need, relatedness, is a desire to feel close to others and emotionally secure in ones relationships. Relatedness is looked upon as a combination of security and affection (Deci & Ryan, 1985; Ryan & Deci, 2000). Feeling secure and knowing that you are surrounded by people who care and can support you. Relatedness between interventionists and participants may be one of the reasons why face-to-face interventions show greater results in behavioural treatment (White et al., 2004). Wrotniak et al. (2005) discussed that family-based interventions gave parents and children the opportunity to work together on a task that was meaningful and important, which can reinforce relatedness within the family. Feeling a sense of relatedness to

health professionals such as doctors and dieticians, may also play a role in a participant's motivation to follow newly acquired guidelines. According to Grolnick et al. (1997), intrinsic motivation flourishes only when one has a sense of relatedness to others.

Thus the constructs of SDT work together as autonomy is enhanced by relatedness, and competence has the potential to increase ones security in a situation and lead to a feeling of relatedness. On the other hand, when these three basic needs are unable to be fulfilled, the result is a lack of self-determination and a diminishing of well-being (Chirkov et al., 2003; Deci & Ryan, 1985; Ryan & Deci, 2000). This explains why we would expect to see a lack of autonomy, control and relatedness in families that are dealing with childhood overweight and unable to successfully adhere to treatment.

The primary concern of SDT is individual well-being. The theory suggests looking first to an individual's social contexts and then to their developmental environments to examine the degree to which the needs for competence, autonomy, and relatedness have been satisfied (Chirkov et al., 2003; Grolnick et al., 1997). It is the satisfaction of these needs that motivates individuals to achieve well-being. There are two types of motivation – intrinsic and extrinsic. Intrinsic motivation is comprised of both behavioural and psychological activities that are performed for the sake of the activity. These activities do not require any outside forces or prompts and are done freely without reward. Often it is a person's curiosity or desire to explore that propels them to participate in an intrinsically motivated activity for the inherent pleasure of that activity (Grolnick et al., 1997).

Extrinsic motivation is quite the opposite. When extrinsically motivated, it is an external force that drives a person to participate in a particular activity, instead of the

inherent pleasure of the activity (Grolnick et al., 1997). In SDT, intrinsic motivation is seen as the "prototypic manifestation of the human tendency toward learning and creativity" (Ryan & Deci, 2000, p. 69). Thus, the enhancement of intrinsic motivation is seen as a true benefit in SDT.

Achieving true intrinsic motivation is rare. Grolnick et al. (1997) attributed child's play to intrinsic motivation because as adults it is uncommon that there is not some form of extrinsic motivation influencing a particular behaviour. However, according to SDT situations which increase feelings of competence can enhance intrinsic motivation for that activity which is being performed. Motivation in SDT moves along a continuum from non self-determined (controlled) to self-determined (autonomous) (Deci & Ryan, 1985; Ryan & Deci, 2000).

At the most controlled end of the continuum is amotivation and no intention to act. At the autonomous end is intrinsic motivation. Between these two extremes are four types of external motivation. The first, external regulation is the least autonomous and is performed to receive some type of award or avoid punishment (Ryan & Deci, 2000). If these external pressures are eventually internalized, this can give rise to the second type of external motivation, introjected regulation. With introjected regulation ones behaviour is somewhat internal but activities are still performed out of guilt or to please others (Carver & Baird, 1998). The third type of external motivation, identification, is a more autonomous form of external regulation. Identification takes place when behaviours are accepted as ones own or consciously valued (Ryan & Deci, 2000). The most autonomous and final form of extrinsic motivation is integrated. Integration takes place when a behaviour is brought into congruence with ones values.

*Research With Self-Determination Theory*

Previous studies have used SDT to examine parenting behaviours. Koestner, Ryan, Bernieri, and Holt (1984) demonstrated that limits can be conveyed to children without decreasing intrinsic motivation or self-determination. Particularly limits set in an informational style as opposed to a controlling style. While examining parenting styles and school outcomes, Grolnick and Ryan (1989) found that children's self-regulation was positively predicted by parental autonomy support. Grolnick and Ryan (1989) also noted that parents who were more dedicated to the child rearing process and made themselves available to provide children with psychological resources had children with a greater sense about who or what controlled outcomes in school. Home environments equipped with clear and consistent rules and expectations fostered children's differentiation of control processes. The findings of Deci et al. (1993) added strength to these studies with their correlation of a negative relationship between maternal control and children's intrinsic motivations. Findings such as these demonstrate the usefulness of SDT in examining parent behaviours in the family dynamic.

SDT is also useful in research examining people's motivations for health behaviour change. Williams et al. (1998) demonstrated that patients who felt autonomous, as well as a sense of relatedness to an autonomy-supportive physician, were more likely to have the motivation to adhere to long-term prescriptions. Ntoumanis (2005) found that physical education teachers' support of students' psychological needs for competence, autonomy, and relatedness positively predicted student need satisfaction

and intentions to participate in optional physical education classes. Furthermore, that need satisfaction predicted self-determined motivation which predicted student effort.

Specifically looking at weight-management, Williams et al. (1996) found that level of autonomy, as well as autonomy support from staff, was positively correlated with weekly attendance to a 6-month weight-loss program, as well as weight-loss maintenance at follow-up. This demonstrated that autonomous motivation and relatedness with staff plays an important role in weight-loss and management. The findings from this study provided clear support for the use of SDT in weight-management (Williams et al., 1996). It also suggested that SDT is useful for examining the adaptation and maintenance of health promoting behaviour change.

Family-based pediatric weight loss interventions need to tap into more self-determined behaviour and autonomous regulation through identification and integration. Providing an intervention that matches the needs challenges and preferences of overweight children and their families, may increase their competence, autonomy and relatedness. As a consequence, these families may be more self-determined to adhere to newly acquired behaviour changes and see long term results. Preliminary findings (Lenk et al., 2006) suggested that there might be some issues within the family dynamics of the participants (lack of autonomy, relatedness and competence) that SDT could lend itself to. Thus, SDT was proposed as a guide during the qualitative analysis, leading to a possible framework for future weight-management interventions.

The first step in tapping into self-determined behaviour and modifying interventions was to examine the lived experiences and challenges faced by the parents of overweight children. Qualitative methods were chosen for this task and SDT was used as

a guiding framework for analysis once preliminary findings (Lenk et al., 2006) revealed an absence of SDT. Qualitative research provides a unique method of assessment and understanding of the context of a phenomenon. Within qualitative research there is an emphasis on understanding (Maykut & Morehouse, 1994). In order to understand the participants situations, qualitative interviews were used to gather data.

# CHAPTER 3. METHOD

## *Qualitative Research*

Using qualitative methods, the researcher is able to generate detailed descriptive data (Baumgartner, Strong, & Hensley, 2002). Quantitative research is often used to show correlates or determinants of a phenomenon using statistical analysis and mathematical significance. However, qualitative research "...examines people's words and actions in narrative or descriptive ways more closely representing the situation as experienced by the participants" (Maykut & Morehouse, 1994, p. 2).

When examining the experiences of others, qualitative research can be used to provide a deeper understanding of those experiences. Qualitative findings "are used to improve programs, deal with real problems, or support concrete decisions" (Patton, 2002, p.168). Qualitative analysis has the potential to add to the existing research base used to examine childhood obesity management and enrich our knowledge within both health and healthcare (Mays & Pope, 2000).

Qualitative methods can be used to evaluate current situations, to develop practical solutions to problems, to make real-world decisions, as well as in organizational or community development (Patton, 2002). These areas were applied to this study respectively through the assessment of families' current behaviours, as well as the eventual development of solutions that will work with them, making decisions that they can use in their every day lives, and using this information to develop more effective interventions. Qualitative methods provided detailed descriptions of how these parents are interacting with their children in regards to obesity management. Furthermore, various life experiences were recounted in their own words and captured in the data. This

would have been difficult to examine using a quantitative scale. Finally, participants' perceptions were analyzed throughout the interview process (Patton, 2002). Findings that emerged from these interviews will have important implications in the development of future weight loss interventions.

Interviews were chosen as the method of data collection based on the fact that we are unable to observe other people's feelings, thoughts and intentions, or what has taken place in the past (Patton, 2002). In order to enter into another person's perspective, we must ask questions. According to Patton (2002), we interview to gather someone else's stories and see what is in their minds. Interviews were required in order to understand the challenges faced by the parents of overweight children.

Consistent with our objectives, research question and ecological model (Spence & Lee, 2003), the qualitative interviews provided a means for revealing in-depth data about complex interactions between overweight children, their parents, their families and their environment. The complexity of individual-environment interactions required a qualitative approach, as these issues would have been difficult to examine in depth using other methods such as questionnaires. Qualitative research has been shown to be especially useful for providing data that can improve treatment (Giacomini & Cook, 2000a, 2000b; Mays & Pope, 2000).

*Participants*

Although the purpose of this research was to examine parental characteristics and behaviours, the sampling of families was based on the characteristics of the children, rather than the parents, because the focus was on the parents of overweight children. Participants were the parents of children with a body mass index (BMI) ≥ 95th percentile

based on age- and gender-specific cut-offs (Centers for Disease Control and Prevention, 2000; Dietitians of Canada et al., 2004). A sample of 20 children (13 female, 7 male) and at least one parent were recruited. There was no attempt to identify any gender differences throughout the analyses. The mean age of the child participants was 11.0 ± 2.9 years, with a range from 5-16 years. Children were interviewed but their data have not been included in this study.

Twenty-one parents in total were interviewed as most children came with one parent, but one child came with both her mother and father. The mother and father were interviewed together, resulting in a total of 20 parent interviews. Seventeen mothers (Mean age 42.8 ± 6.8 years), and 4 fathers (Mean age 44.0 ± 5.5 years) were interviewed. As this was a family-based study, children aged 5-16 years were recruited because at this age children are still quite dependent on their parents to provide nutrition and other basic needs. Table 1 presents demographic information about each participant.

Table 1

Participant Demographics

| | Parent | | Child | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | Sex | Age | Sex | Age | Height (cm) | Weight (kg) | BMI (kg/m$^2$) | SES |
| 1 | F | 41 | M | 9 | 158.5 | 75.0 | 29.9 | 4 |
| 2 | F | 53 | F | 13 | 165.0 | 90.0 | 33.1 | 4 |
| 3 | F | 42 | F | 14 | 151.5 | 105.3 | 45.9 | 2 |
| 4 | F | 52 | F | 11 | 160.0 | 99.4 | 38.8 | 3 |
| 5 | F | 27 | F | 5 | 118.6 | 46.6 | 33.1 | 2 |
| 6 | F | 48 | F | 14 | 165.3 | 95.6 | 35.0 | 3 |

| | Parent | | Child | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | Sex | Age | Sex | Age | Height (cm) | Weight (kg) | BMI (kg/m$^2$) | SES |
| 7 | M | 51 | M | 11 | 148.8 | 57.8 | 26.1 | 5 |
| 8 | F | 46 | M | 13 | 167.7 | 86.2 | 30.6 | 2 |
| 9 | F | 40 | M | 11 | 155.9 | 73.8 | 30.4 | 5 |
| 10 | F | 47 | F | 12 | 161.8 | 95.0 | 36.3 | 5 |
| 11 | F/M[a] | 43/42[a] | F | 16 | 170.0 | 83.3 | 28.8 | 5 |
| 12 | F | 35 | F | 7 | 133.0 | 44.5 | 25.2 | 6 |
| 13 | M | 38 | M | 7 | 130.0 | 46.5 | 27.5 | 5 |
| 14 | F | 49 | F | 9 | 148.0 | 56.8 | 25.9 | 5 |
| 15 | F | 35 | M | 10 | 153.0 | 55.0 | 23.5 | 5 |
| 16 | F | 45 | F | 13 | 163.0 | 93.5 | 35.2 | 2 |
| 17 | M | 45 | F | 14 | 159.0 | 106.5 | 42.1 | 4 |
| 18 | F | 47 | M | 14 | 180.0 | 93.5 | 28.9 | 4 |
| 19 | F | 42 | F | 15 | 173.0 | 114.0 | 38.1 | 4 |
| 20 | F | 35 | F | 10 | 141.0 | 49.5 | 24.9 | 5 |

Note: SES represents family income, where 1 = $0-$19,999; 2 = $20,000-$39,999; 3 = $40,000-$59,999; 4 = $60,000-$79,999; 5 = $80,000+; and 6 = unknown.

[a]Both parents (female and male) participated in interview number 11.

*Sampling and Participant Recruitment Strategy*

It should be noted that recruitment for this study was challenging. A total of 91 potential participant families were contacted, and only 20 families participated. This reflected a response rate of approximately 22%. Some of the recruitment challenges included parents who felt they had no time to participate, who were discouraged by the fact that the study was not a form of treatment, who wanted to keep their time free in case they were called off of the wait list for treatment, and who did not want to pull their children out of school. Transportation into the university was another barrier to recruitment. Scheduling and prioritizing was also an issue as some families who agreed to participate were never able to make it in to the university and had to cancel.

Purposeful sampling was used to increase the likelihood that the variables common to families dealing with childhood overweight would be well represented in the data (Maykut & Morehouse, 1994). To be included in the study, families had to have at least one at risk of overweight or overweight child, between the ages of five and 16, who had been referred to the PCWH. Families were recruited and interviewed before receiving formal health care other than a referral from their family doctor to the PCWH. The recruitment coincided with the referral process to the PCWH. Overweight children were referred to the PCWH, and placed on a waiting list. The PCWH administrative assistant forwarded this information to the primary investigator who contacted the families on the waiting list to solicit participation in the research study.

All children who were referred to the PCWH and met the study criteria were invited to participate. Participants from other ethnic groups were not excluded in order to maximize the breadth of the sample, however the participants were primarily Caucasian

because approximately 80% of overweight patients from the sample pool at the time were Caucasian.

Once contact information had been collected, parent participants were contacted by telephone. The parent participants were given a brief explanation of the purpose of the larger study and were made aware of the approximate time commitment required and the cash reimbursement for parking and gas expenses. Once a parent had indicated interest in participating, a convenient interview time was scheduled.

Prior to each interview, parents were given an information letter (see appendix C) that outlined the purpose of the study. They were then asked to sign one consent form for themselves (see appendix C) and one consent form for their child (see appendix C). At this time the participants were informed of the benefits, lack of risk, freedom to withdraw, and contact information for any concerns.

*Site Selection*

Interviews were conducted at the University of Alberta in Edmonton, Alberta, Canada. This was due to accessibility as well as the university's affiliation and close proximity to the PCWH. Also, as the university is located in the Capital Health Region, most participants were familiar with the area and able to access the location quite easily.

*Data Collection*

During the period of April, 2005 through September, 2006, semi-structured interviews were conducted with 21 parents. Semi-structured interview guides allowed for each participant to be asked the same main questions in the same order but also provided freedom to go with the flow of the conversation (Patton, 2002). The interview guide (see appendix D) contained a series of questions, follow up questions and probes. Maykut and

Morehouse (1994) note the importance of follow up questions and probes in qualitative interviewing as they can add to the richness of the data. The interviewers were given the freedom to probe and question beyond the interview guide while remaining within the structure of the interview. The parent interviews varied in length from 25-60 minutes. With the participant's permission, all interviews were recorded and transcribed verbatim.

Children and parents were separated and engaged in individual semi-structured interviews. Two trained graduate students conducted the interviews. The interview guide has been provided in appendix D. The questions were guided by the EMPA (Spence & Lee, 2003). The questions revolved around challenges associated with managing overweight in the family environment, school environment, out-of-school environment, physical activity programs and physical activity in the neighbourhood, nutritional practices, and treatment preferences. Also included was the 'miracle question' idea (i.e.,"If you were made principal for a day…") from deductively developed solution-focused therapy (De Shazer & Berg, 1997) to provide a creative means of tapping into participants' ideal treatment preferences.

Every effort was made to ensure a comfortable environment for the participants. If at any time the interviewee became uncomfortable or did not wish to answer a question, the interviewer was to respect those wishes. However, this situation did not arise.

*Demographic Data*

A researcher-administered questionnaire was used to obtain basic demographic information, including age, gender, ethnicity, and family income. Children's height was measured to the nearest centimetre using a wall-mounted stadiometer (Holtain Limited,

United Kingdom), and weight to the nearest kilogram was determined using an electronic medical scale (Healthometer, Bridgeview, IL). Each child's BMI and age- and gender-specific BMI percentile was calculated using EpiInfo (Centers for Disease Control and Prevention, 2000).

*Data Analysis*

With qualitative research, the distinction between data collection and data analysis is not fixed (Patton, 2002). It is best to make data analysis an early and ongoing process (Maykut & Morehouse, 1994). The recording and tracking of analytical insights that occur throughout data collection constitutes the beginning of qualitative analysis and can also improve the quality of data analysis (Patton, 2002). Analysing data while still in the process of data collection assisted with the probing and questioning throughout the remaining interview process.

Interview data was transcribed verbatim and coded using the Microsoft Word software program. Data was then subjected to an inductive-deductive content analysis procedure to assess parents' challenges and lived experiences. Patton describes content analysis as "…any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings" (2002, p. 453). Content analysis was carried out according to the steps provided by Tesch (1990, p. 142-145). This procedure involved first getting a sense of the whole (by reading all the transcripts thoroughly). Next, the researcher selected one case document, and listed all the relevant topics within that document. Themes reflecting the essential meaning of all the listed topics were labeled in this inductive process. For the current study, a coding scheme based on the three main tenets of SDT (competence, relatedness, and autonomy) was used to organize the identified topics because preliminary findings (Lenk et al.,

2006) appeared to be consistent with some aspects of SDT. However, as the data analysis evolved, some themes emerged that did not fit into the SDT framework. Thus, in order to avoid compromising the data by attempting to fit everything into SDT, the framework was used as a guide but still allowed for inclusion of the new themes. The next step involved coding themes in the remaining interviews being sure to avoid duplication of themes. To avoid duplication of themes and to ensure that data were similar enough to be labeled with the same code, each theme was given a "rule of inclusion" (Maykut & Morehouse, 1994) which described its meaning.

For example, the sub-theme of "no friends", which fell under the broader category of "parents' perceptions that children are lacking social support", was given the rule of inclusion that stated, "This theme refers to the parents belief that their child has no friends". The following is an example of a quote coded as "no friends":

> *M1: So previous from kindergarten on, he's never had a friend in the school environment... In school he is not popular. So before he was excluded on the playground...[he] was never invited to birthday parties....*

New themes were created and added to the coding scheme as necessary. Having established all the themes, they were grouped together under more general level headings as categories (which originally related to competence, relatedness, and autonomy, but were expanded once the SDT framework became more of a guide). For example, the theme "no friends", mentioned above, was grouped under a category representing the *lack of relatedness* called "parents' perceptions that children are lacking social support." Thus, the identification and coding of the themes under SDT was mainly a deductive process. However, as the data analysis moved away from SDT to include categories such as, "parents used extremes of control and leniency around healthy eating" (which did

contain elements of a lack of autonomy from SDT), the process was guided more by previous research (Lenk et al., 2006) and followed a more inductive-deductive pattern. Finally, the results were tabulated for the purposes of concise presentation. Table B1 presents the categories, sub-themes, and rules of inclusion.

*Validity*

The following three techniques were used throughout the research process to help establish the trustworthiness of both the data collection and analysis:

(a) Immediately following any form of data collection or analysis, the interviewers turned to reflexive journaling to minimize any biased interpretation that may have occurred over time as well as engaged in regular conversations with peers to help monitor how personal biases may have been influencing the research process (Wolcott, 1990). Reflexive journaling was used by the researchers to reflect on their own voices and perspectives because, "Reflexivity reminds the qualitative inquirer to be attentive to and conscious of the cultural, political, social, linguistic, and ideological origins of one's own perspective and voices of those one interviews and those to whom one reports" (Patton, 2002, p. 65).

(b) As there is more than one way to interpret data, the research team accounted for individual research biases by working together to complete data analysis (Baumgartner et al., 2002; Janesick, 2003). The primary investigator led the data analysis and would frequently debrief with the supervisory committee (Lincoln & Guba, 1985). Working as a team fostered insight and added credibility to the study, while reducing bias by raising questions when necessary (Maykut & Morehouse, 1994).

(c) With inter-rater coding, another researcher was able to re-code meaning units into appropriate themes which could then be compared to the original coding scheme. Once the primary investigator had completed the coding, 30% of the coded quotes were randomly selected and given to another trained researcher to re-code. Similarities and differences were than compared and discussed. As there were no significant differences, the coding scheme was maintained. This was used as a form of analytical triangulation as significant insights can materialize when two different people look at data in their own unique way (Patton, 2002).

# CHAPTER 4. RESULTS

Results are presented as seven main categories with a range of associated sub-themes. An overview of these categories and themes is provided in Table E1. Overall, analysis revealed some complex, and largely ineffective, examples of parenting practices that were apparently intended to influence their children's food consumption and physical activity engagement. Emerging as the first category, parents reported that they actually *lacked the skills and knowledge to promote healthy eating*. Secondly, parents also *lacked the skills and knowledge to promote physical activity.* Within each of these two categories were the sub-themes of time management and negative role modeling.

Although the parents acknowledged they lacked some necessary skills and knowledge, many did in fact attempt to influence their children's healthy eating and physical activity. Analysis revealed that these attempts reflected parenting practices using *extremes of control and leniency*. From these findings the third and fourth categories were identified: Parents reported extremes of control and leniency around healthy eating (relating to food selections and portion size); and extremes of control and leniency around sedentary behaviours/physical activity (relating to screen time and controlling physical activity). However, these strategies, whether controlling or lenient, did not appear to be effective.

The fifth category was shaped by the *parents' perceptions that children are lacking social support* in their daily lives, and that this had implications for weight management. Sub-themes associated with this category related to parents' perceptions of an overweight stigma, children having no friends, and the negative impact of children having no friends on their physical activity.

The sixth category referred to parents' *treatment preferences*. These parents reported negative interactions with health professionals. Specifically they desired better help from health care professionals to get health related messages across to their children. Parents also wanted treatment that focused on increased social support for their children, while providing family-centred treatment.

The final category reflected *policies and programs*. Parents wanted changes to be made at the level of government policy. Specifically, parents want these changes made in their community facilities, school systems as well as in the food industry. Basically, parents wanted government support to address the issue of childhood overweight.

*Parents Lacked Skills and Knowledge to Promote Healthy Eating*

In total, eleven parents (see Table E1.) reported they lacked the necessary skills and knowledge to promote healthy eating and physical activity engagement among their children. Five parents specifically acknowledged the role of time management and its impact on providing healthy food and physical activity for their children. Nine parents also reported that they did not model positive physical activity and healthy eating beaviours. In fact, just the opposite was reported, and therefore this sub-theme was coded as 'negative role modeling.'

*Time management*. With everything that is going on in these families' lives, parents lack the skill to squeeze healthy meals into small windows of opportunity. Mother (M)12 said, "…for us as a family, time management is the hardest thing for us to make nutritious meals, 'cause I don't get home till six o'clock at night." By this time M12's family has "…already ravaged [the] house." This made mealtime a bit of a panic for M12

who added, "You know by then everybody is really hungry so it's usually whatever we can make really quickly."

Although father (F)17 once did some cooking in the café that he ran, he did not learn how to cook healthy from scratch, "So you know there is huge gaps in my understanding, I don't really have time to research it and learn it all on my own…" F17 proclaimed to enjoy cooking and that he would love to learn more about it, "…but it's a lack of time…" On top of this is what F17 referred to as a, "…lack of dynamics; you know does the fridge hold what I'm thinking of today, you know all of those types of things." F17 felt that his time and energy were, "…consumed with other issues." These parents felt that they lacked the skills to make more time for dinner or fit a healthy dinner into the time they had available.

*Negative role modeling*. M12 made the simple statement that her daughter, "…likes to do what you are doing, so whatever you are doing [she will do]." This quote emphasizes the importance of parental role modeling behaviours. In terms of providing a healthy meal her daughter will eat, M12 said that in addition to her daughter being very selective about what she eats, "…I suppose my husband and I are probably not the best role models in that regard [healthy eating]." In trying to get her son to eat five to ten vegetables and fruits per day M18 admitted that, "I don't even do five or six vegetables a day, so it's kind of hard for him to do it." F11, who was considerably slimmer than his overweight daughter pointed out that, "If we keep the junk food out of the house she won't go and buy it." However, F11 then laughed and said, "Unfortunately I have kind of a sweet tooth…thin bastard, [I] should be keeping junk food out of the house." This

father was willing to jeopardize his daughter's healthy eating in order to satisfy his cravings for unhealthy foods.

Overall, these parents acknowledged they need to find ways to set aside enough time to provide healthy meals or learn how to prepare healthy meals in a short period of time. Unfortunately, these parents are not modeling the healthy eating behaviours they expect their children to adopt.

*Parents Lacked Skills and Knowledge to Promote Physical Activity*

When it came to providing physical activity for their children parents described similar patterns as for healthy eating; time management and positive role modeling were the main skills these parents lacked.

*Time management.* M3's daughter enjoyed going to the gym with her mother. However M3 admitted that she could only make it to the gym to encourage her daughter, "When the time permits me to go." M12 talked about trying to get her daughter involved in sports and extracurricular activities as well as doing things as a family, however she added that, "…unfortunately we're probably not really strong in that area, it's just a matter of time commitment." This parent's good intentions were blocked by the belief that her family did not have the time to commit to these activities. M12 elaborated with this discussion of her priorities:

> And again that is putting those [healthy] priorities forward and we are still struggling with that…because when I come home I've got 17 million other things to be doing besides going for a walk. And I don't know where those priorities have to sit…because you still have to make lunch and do laundry and all of this other stuff…because I know [my daughter] does want to go [for a walk]. Like for

her it isn't that she's lazy as such, she is always wanting to be on the go, but I think we kind of inhibit her a little bit.

This quote emphasizes the fact that children who have the drive to get out and be physically active can be held back by their parents' inabilities to find enough time in their day for such activities.

*Negative role modeling.* When M1 was discussing ways of getting her son to walk more, she talked about the difficulty she and her husband have in modeling this active behaviour themselves. M1 said, "…if we say okay [son] we should go for a walk, well what if I don't feel like it then I'm not too prone to do that." M1 was well aware of these negative modeling behaviours and said, "The only one to blame is me…we're not too good at that [being active]." M19 referred to her struggles about physical activity with her daughter as, "…a down hill battle a lot of the time and a lot of arguments…" M19 felt that getting her daughter active was made more difficult by the fact that, "…we [family] all have weight issues, it makes it a lot more difficult because we don't necessarily practice what we preach…" M19 admitted that this process of getting her daughter active would be a lot easier if she and her husband did, "…all the things we don't do…"

Parents also acknowledged the fact that their own screen time (e.g., TV) often got in the way of physical activity with their children. Instead of modeling physical activity, these parents were modeling sedentary behaviours. When discussing his son's enjoyment of bike riding, F7 said, "…actually [my son] goes quite often just by himself and I'm kind of guilty being lazy and not going with him, because he's always asking me to do that." When asked about his laziness, F7 added, "I'm definitely guilty, like a lot of times, I'll just watch TV…whereas I could be doing something more constructive, instead of

just vegging out on the couch…" M16 felt that her husband was acting as a negative role model to their daughter. She said, "…my husband watches way more TV then [my daughter] does…he comes home and he watches TV till he goes to bed…" This father is not an example of a positive role model for physical activity.

Overall, parents were not able to find the time to be physically active with their children, even though they claimed that their children were eager to participate with them. However, parents admitted that when they did have time to be physically active, they chose to participate in sedentary behaviours instead, acting as a negative role model.

*Parents Used Extremes of Control and Leniency Around Healthy Eating*

Although parents' reported they did not have the skills and knowledge to promote healthy eating among their children, data also showed that parents tended to adopt 'extreme' practices reflected by either being excessively controlling or extremely lenient when it came to promoting healthy eating. In the following sections some extremes of control and leniency with regard to parents' attempts to promote healthy eating (food selections and portion size) are discussed.

*Food selections.* Parents struggled to help their children make appropriate selections about the food they consumed. Twelve parents (see Table E1) attempted to control their children's selections by denying them choice. For example, in M5's household, "…everything is fat free." By only having fat free items in the house M5 felt that her daughter would be forced to make the right decisions. M8's son did not have to make choices because M8 had very strict rules about what foods were eaten in the house. M8 said, "…we try to make sure he has at least three or four salads a week, that he eats only lean meat, and that we don't overdo it on the sauces and the gravies, and that he, you

know, gets balanced portions." According to M8, she maintained a great deal of control over what her son ate and denied him goods that she considered to be unhealthy. She said, "I'm learning more and more [that] you have to take away all the other temptations, like there's no cookies and there's no granola bars, and there's no chips and things like that." Although these parents had very strict rules around food, they shared no stories of success as a result of their methods.

Three parents (M8, M9 and M15) also attempted to control their children's food selections by using extrinsic rewards. When talking about getting her son to eat five fruits or vegetables in a day M9 said, "Well I know that the rewards system works really great in our family." One example given by M9 was, "...extra privileges. And we're very strict on TV and gaming and computers, so those are always things that are a reward...extra time. That's kinda how we would target that." When asked if there was anything else that could be done to encourage her son to eat his fruits and vegetables M9 laughed and said, "Money's always good; at times we have resorted to a little monetary incentive...but not on a daily routine." Although M9 had used extrinsic rewards, she was still unable to get her son to eat the recommended amount of fruits and vegetables.

Sixteen parents (see Table E1.), including those who showed evidence of controlling behaviours, were more permissive in terms of trying to influence their children's food selections. M1 expressed a sense of despair about her attempts to encourage healthy eating for her child. She said, "It's to the point I just don't know what to give him...when I've tried to make him eat the non-processed stuff like, [I say] 'oh come you know try,' [and he yells] 'I don't want it, I don't like [it]!'" She further

explained that she retained some control over breakfast and lunch selections, but "Supper… it's mostly him because I don't know what to give him."

Referring to her attempts to control what her child ate, M4 said she had given up because she "just didn't have what it took to keep fighting with her [daughter]," M5 explained that when vegetables were served with dinner her child would, "…just leave them on her plate." Furthermore, the mother explained that "If you put one [vegetable] in her mouth she'll spit [it] right back out. She won't chew it… just won't eat them." M5 explained that rather than confronting her child about these inappropriate behaviours, she acquiesced and by that time the child was five years old and the child was allowed to decide what she wanted to eat. Similarly, M11 said that when her child "wants something junky she'll ask us to go get it for her and we will" and F11 concurred when he said "…we have a hard time saying no."

*Portion size.* Another aspect of permissive parenting practices was exemplified by the lack of control parents exerted over the size of the portions their children consumed. Eight parents (see Table E1.) reported concerns over their children's portion sizes. M5 explained that her daughter will have "a peanut butter and jelly sandwich on whole wheat bread, well that one sandwich is not enough for her, because she wants another one, and then she wants another one, and it's almost like she doesn't know her limit, of feeling full." M14 thought that she had actually contributed to her child's lack of self-control around portion sizes. She said, "My mistake was, as long as it was good food I would always give her as much as she wanted. Because I thought well this is broccoli or this is fruit and that was my mistake, because there was calories in those too." M19 described her teenage daughter's typical meal size. For breakfast "she'll have two eggs, two pieces

of toast with ah, Cheez Whiz on it and then she'll go an hour later and have a bowl of cereal, so she doesn't understand, really and truly what healthy eating is." Similarly, F17 said:

> We order pizza, she'll [daughter] take a half, well, she'll take half of it and put it on her plate. Like it's a large pizza, like I'm not sure if it's a large or, but when I look at the pizza box, she has eaten half of it. Okay umm, and it's just stacked up on her plate and go away with it and I think it's just become a habit to eat this much.

Parents also struggled to control children's snacking on healthier alternatives. For instance, M19 reported:

> We can have the good things in the house, but if she's alone and she makes unhealthy choices, and we try, I mean I try not to buy the garbage, but she can make, anything in the house, turn into garbage, so you could buy granola bars, if you have one it's okay, if you have four it's not very good…

In a similar example, M18 said at the end of the day her son "will be looking for a snack, naturally… he might go for ah, if he finds the granola bars and decides that he wants a granola bar it will be two or three, you know quantities [are a problem]." And M10 said, "it's very difficult to try and control what she's eating because she doesn't care if she eats four apples or four slices of bread, whatever is there, that's what she's going to eat." Combined, these examples show that some parents were aware that their children were consuming too much food, but the parents did not appear able to take effective action to curtail these behaviours.

In summary, parents struggled to make their children make healthy food choices. Some parents tried to strictly control their children's food selections and used extrinsic rewards to control these behaviours. Other parents were more permissive and acquiesced to their children's 'unhealthy' food and portion choices. Interestingly, the parents who claimed to have control exhibited permissive behaviours as well. This demonstrates a real struggle between controlling and permissive parenting. Regardless of the specific strategies, parents appeared to be ineffective in terms of influencing their children's food choices.

*Parents Used Extremes of Control and Leniency Around Sedentary Behaviour/Physical Activity*

Just as parents adopted 'extreme' practices reflected by either being excessively controlling or extremely lenient when it came to promoting healthy eating, similar findings were revealed around sedentary behaviour and physical activity. In the following sections some extremes of control and leniency with regard to parents' attempts to influence sedentary behaviour/physical activity are discussed.

*Screen time.* Nine parents (see Table E1.) reported their children spent excessive amounts of time in front of screens. Furthermore, parents exerted little control over their children's screen time. Describing a regular school day, M20 said her children would watch "…definitely two hours of TV, usually every day. And then maybe like a half-an-hour computer, half an hour video games." After thinking a bit more about it, M20 added, "But, on some days you know, they watch TV for like 5 hours [laughs]." Similarly, M11 said that during the school week her daughter watched TV for "an hour after school, guaranteed…on the TV, um and at least an hour a day on the computer."

F11 added, "Um, and if she can squeeze it in, an hour some time at night on the TV. So, three hours of screen time [per day]."

Children appeared to watch more TV on the weekends than during weekdays. M18 said, "On weekends we don't limit TV or computer games." According to F7, "…on weekends [screen time]'s more… if we're just at home and we're not going anywhere, like, uh, he can spend most of the day doing that… probably, uh, six to eight hours it could be easily." According to M8, "On the weekend [TV]'s constant like from the time he gets up to the time he goes to bed… Starting from Friday night to Sunday night [my son will spend] a good… hmmm… forty eight hours" in front of screens. F17 captured the extent of screen time over the weekend for his child:

> Weekends, one hundred percent you know literally, parks her butt in front of the screen… She pretty well moves into the basement. There's a TV, computer system, her phone, umm so for the weekends at my house, I would pretty much say, unless she is getting food, water or using the bathroom she is in front of a screen. And that includes sleep time, okay, she chooses to sleep down stairs.

So, F17's child even slept with the TV on, but he explained that during the night he changes the TV station "to music versus the chatter because I don't want her to get filled up with garbage while she is sleeping. I don't think it is beneficial." In fact, this father provided a good example of the leniency associated with a permissive parenting style when he said that he had, "a personal philosophy allowing her [daughter] to dig her own hole so she can learn the responsibility of not getting there… But my dynamic right now is saying yes way too often, because of my dynamic." The 'other dynamic' was his recent divorce from the child's mother.

Some parents had attempted to create rules and structure around screen time (usually TV viewing). F7 said that for his son:

> You'd just have to tell him, like set hours, and that's it…yah, if you tell him, he's pretty good, he'll listen, he'll kind of complain about it but lets say if you put a timer or whatever on the oven, if it beeps or whatever he's usually pretty good, if you talk about it before hand.

This was a good example of an attempt at a more authoritative parenting approach whereby the parent established some boundaries. However, F7 was not prepared to communicate or reinforce these rules, and as a result his child still indulged in a lot of screen time. In fact, even when parents established rules or limits for screen time, the rules were rarely adhered to or reinforced. M10 said that the screen limit in her house was one hour per day. However, she later admitted that, "Sometimes [child] is pretty good at getting away with [having more screen time], depends…" M10 then clarified by saying, "…but, if I'm home, then I usually pick up on it and tell her you know, 'You're off TV,' sort of thing or say to her, her hours up…"

One reason why TV was such a popular activity may have been because some parents thought that their children actually benefited from watching it. M11 said, "Her screen time is always some show that all the girls are looking at so that they can talk about it the next day. So her love of the TV is what she has, and the girls talk about it…so I think she needs that." M11 said,

> [The girls] all get together and talk about…oh there's One Tree Hill, Gilmore Girls, um Grey's Anatomy…and they almost have one every night that they could look at…. I don't know about cutting back much more…I don't know. That

> would be hard… she'd still be able to talk about some of the shows…it wouldn't cripple [her social life]…well.

The difficulty M11 had expressing her opinion seemed to reflect her concerns about negatively impacting her daughter's social life by reducing screen time.

*Controlling physical activity*. Twelve parents provided reports about their attempts to control children's physical activity in some way. Parents attempted to either promote (10 parents), or in some cases curtail (four parents), their children's involvement in physical activity. One way parents tried to promote physical activity was by 'forcing' their children to enrol in and maintain physical activity. M12 was aware that her daughter is a very busy seven year old. According to M12, "well we try and keep her, because of her weight, we probably put her in more things than most of her classmates do." In an attempt to curtail her weight issues, this child was participating in many more activities than other children her age. And the activities she was enrolled in were quite intense. M12 said, "…she's swimming, she's in the pool, right now she's in the pool for an hour three times a week doing laps."

M4 told this story about enrolling her daughter in different physical activities, including those that her daughter says she does not like:

> …[My daughter] says she doesn't like volleyball but I think she would. I put her in badminton last fall, she was busy four days a week with her triathlon and badminton. I put [my children] in fencing; I tried them in yoga I had her in rhythmic dance at one point…I just keep trying different ones, and she's not that inspired.

It appeared that without discussing what her daughter liked and disliked, this parent continued to sign her up for activities that she did not enjoy and did not maintain. Similarly, M8 admitted the only time her son was physically active was, "…because you know I'm forcing him to do something."

Other attempts at promoting physical activity included the use of extrinsic rewards (similar to the methods parents used to promote fruit and vegetable consumption). Two parents used food as a reward for participating in physical activity. In order to get her son to walk for thirty minutes a day every day, M8 said with a sigh, "You'd have to tell him that if you walk for thirty minutes a day then you get something in return… We'll walk to wherever and get an ice cream..." When asked if food was often used as a reward M8 said, "Unfortunately, yes. Like hot fudge sundaes [laughs] or Timbits." Although this method seems intuitively counterproductive, M8 added that, "most of the time when I really, really want him to do something it's like if we go to the gym now, then we can go for a hot fudge sundae afterwards." M8 pointed out that "it works for a couple of days and then it doesn't. I think it's a matter of conditioning, he would have to, it has to become a lifestyle choice for him."

Conversely, parents also used controlling habits to inhibit physical activity. M11 said, "Ever since [our daughter] was little, being the first granddaughter in the family and the first…everybody watched her like a hawk." This overprotective supervision led to an avoidance of physical activity very early on in this girl's life. M11 added:

> So anything she would do that might that like she may hurt herself we would encourage her not to do…so she always grew up very careful and that….her

> physical activity is um…skiing or skating or anything like that [no way]. She won't even do that…"

F11 confirmed the extent of the over protectiveness when he added:

> We were so afraid, like all of us, not just [my wife] and I…but it was the whole extended family…cause she was the first…we were so afraid that she'd get hurt…it's probably that we have sheltered her a bit too much…"

M11 continued by saying, "Too much…that she just became scared with anything that she would fall with…so her physical activity she never really did lots…" With this story, M11 and F11 admitted they had prevented their daughter from giving physical activity a try.

Protecting children from illness was also a reason parents restricted physical activity. When discussing the encouragement of physical activity, M1 admitted, "No, I'm not too encouraging on stuff in as far as that because of the health issue that was there, I'm overprotective." She did admit that she was, "…backing off now." However, she then elaborated with this story about her son's health issues:

> Up until this summer [his] blood platelets would just suddenly crash, so I'm calming down now that we are back on track. So I have been extremely overprotective. Like don't go out in the cold, I don't want him outside. So a lot of that is my fault, you know being a mother. We haven't encouraged him that way.

Overall, parents struggled with the idea of promoting physical activity while trying to protect their children from injury and illness. Parents attempted to exert some control to get their children active and healthy by 'forcing' them to participate or

persuading them with extrinsic rewards. On the other hand, parents seemed preoccupied with avoiding injury and illness and actually hindered their children's activities.

*Parents' Perceptions That Children Are Lacking Social Support*

Reports of a lack of social networks were prevalent throughout the interviews. Parents felt that their children were victims of a general overweight stigma. Furthermore, their children did not have any friends. In addition, this lack of friends had a negative impact on their children's levels of physical activity.

*Overweight Stigma*. Overall, 16 parents (see Table E1.) believed their children were treated differently and/or negatively due to their size. This 'overweight stigma' was reflected across a range of different contexts. For example, three parents talked about negative treatment from the general public. M3 believed that, "Somebody's always gonna make some comment about how fat you are." M10 explained the size bias her daughter deals with and why her main motivation to help her daughter lose weight is for her emotional health:

> …It's hard when it's your kid and you see people looking at her and…you think you know what they are thinking, they are looking at her and thinking 'Well she's fat,'….and lazy…and all of the things that come along with that. And I think she's had a tougher time to deal with things in life because people judge her before they even get a chance to know her.

M10 added an interesting point when she said, "…nobody else cares at the table what size of cake you're getting or I'm getting, but everyone seems to be concerned with the size of cake [my daughter] is getting, and it really ticks me off…" Clearly M10 was

frustrated with people's reactions to her daughter's weight as well as the social repercussions.

Two parents recognized size bias at school originating from the teachers. M4 felt her overweight daughter was treated differently by teachers than her other daughter of 'normal' weight. Her daughter was getting less attention and M4 said, "I believe part of that is because [of her] appearance." M1 felt her son's size automatically got him into trouble with his teacher, even though other children were picking on him and he was the one doing the retaliating. She said, "He was the one who was seen [by the teacher] as the retaliation and not always seen what was done to him first…your bigger, you always get the worst of it, they'll blame you. And that is exactly what happens."

In addition to the comments already provided, a further 10 parents (15 total) reported their children were treated negatively by other children due to size. M12 pointed out "kids are mean." And something as simple as, "…being pointed out as being the largest one in the group…" can be very hurtful. When asked about her daughter's school, M4 stated, "[My daughter] doesn't want to go." M4's daughter had been made fun of for breaking her chair and was "…hiding behind the computer on MSN talking to her friends", when a boy said to her, "'Why are you on MSN when you don't have any friends?'" This negative treatment has had such an impact on this girl that she wants to avoid school all together.

According to M16, other children at school were having an effect on her daughter's eating habits. The daughter had been picked on so much at school that M16 said, "…she's only been taking an apple and a granola bar which is really not good, but I can't force her to eat anything because she won't eat it, she'll just throw it out." M16

said her daughter refused to eat her lunch because, "[her daughter says]'…people call me fat,' so she stops eating all together, which is not good either."

*No friends*. Along with being treated poorly by others, seven parents (see Table E1.) believed that their child had no friends. Thus, these children are alone in dealing with the stressful events, such as size bias, caused by their weight. Comments like this one from M19 were quite common, "Unfortunately she doesn't really have a lot of friends…" M1 said, "So previous from kindergarten on, he's never had a friend in the school environment…" She added that, "In school he is not popular…he was excluded on the playground… was never invited to birthday parties." M4 said that her daughter, "…didn't want to go to school this year much 'cause the kids. No one is friends with her; they tease her and stuff like that."

M4 was quite passionate about her child's lack of friends and the fact that her daughter had become an 'outsider' in such a small class. She told this story: "[My daughter] was not invited to one birthday party this year from the kids in her class. There are only sixteen kids, nine girls. She was not invited to any of them. I think because of her appearance, her weight and all of that." When asked if there was anything that her child might like to change about herself, M19 stressed the importance and value of friendships when she said, "Honestly I think it would be, friends, just to be able to have some friends…" M19 felt that this issue was of much greater importance to her daughter than that of losing weight.

*Impact of lack of friends on physical activity*. Parents felt that having no friends decreased their child's opportunities to participate in physical activity. Not having friends to play with meant that these children would spend most of their spare time being

sedentary. Five parents made general comments about their children not participating in physical activity because they had no friends. M3 and M12 felt that this was due to a lack of children in the neighbourhood. M12 said, "…So for her to find a little friend it might make things a lot easier for her. But right now if she goes out of the yard, one of us has to be with her." M12 admitted that her daughter did not require any encouragement to be active, just someone to go outside and be active with. M12 added, "Her thing is that she has trouble going outside and playing by herself."

M4 also said, "…[Her daughter] would be active if she could with a friend all the time. If she could find some friends…she craves friendship, like she wants to be around people all the time and she needs friends." M4 was quite frustrated with the situation and added, "I want [her] to go bike riding with her friends, but thing is where do you get the friends to bike ride if you don't have any friends?"

Those parents who felt their child did have a few friends, noticed physical activity only took place when their child was around those friends. M2 said, "…when [my daughter] is with her buddies then she is more active…so, being with her buddies encourages her to keep active." M2 added that, "If there is nobody there I am fighting to get her off the TV; she won't be doing anything active." Similarly M5 said that when other children are around after school, her daughter is, "…out bike riding with her friends, she's on her scooter…she'll do that for an hour and half to two hours, as long as she's got a little friend out there…" M5 then pointed out that, "…not a lot of kids are out everyday right? So I'd probably say two out of seven days she's out [being active]." These parents emphasized the importance of having friends around in order to get their children to be active.

Overall, parents felt their children were treated differently and/or negatively in society due to their weight. This overweight stigma/bias was reflected in the children's lack of friends. In addition, having no friends resulted in a negative impact on children's physical activity levels. As a result of having no friends meant that these overweight children spent much of their time alone and being sedentary.

*Treatment Preferences*

Although parents were unable to improve their children's social networks, they did want to improve their children's interactions in the health care system. Parents recounted previous experiences with health care and noted that better help from health care professionals was needed. This was important because parents felt that they needed help from health care professionals to deal with their overweight children. One suggestion from parents regarding weight management was increased social support through treatment. Finally, parents acknowledged the need for family-centered treatment.

*Better help from health care professionals.* Although parents had turned to the health care system for support, 13 parents (see Table E1.) discussed negative interactions either they or their child had in the past with health professionals. Parents wanted the quality of existing health care services, such as those provided by physicians and dieticians, to improve. Parents, such as M4, told stories of visits with physicians where they inquired about their child's weight and the physician said, "…don't worry about [it] there is nothing you can do about it." Instead of referring the overweight child to a program or recommending a course of action, this physician brushed the patient off with a negative comment, making M4 feel helpless. M10's doctor also discouraged her from seeking treatment for her overweight daughter. The doctor stated the weight issue was

strictly "'genetic' and so for a while I kind of bought that." Although M12 wanted to be on top of her daughter's weight management before it got out of control, her doctor simply said that "'…[your daughter] will grow into her body.'" The doctor emphasized that the weight should not be considered a major issue. When talking about his interactions with physicians, F17 said, "…usually the medical community you know they do the thyroid test and those type of things and then very little else happens, and then so it's rested on [our] shoulders." These parents felt their physicians had left the bulk of the issue up to them to deal with. Parents did not feel that physicians provided the support or guidance that was expected.

Parents also felt that the counselling they received from dieticians was disappointing. The dieticians spoke about meals in ideal situations but did not address how to adapt their suggestions into everyday life. M1 said, "I need reality not the perfect world. We know what the perfect world is for diets." M1 added her visit with the dietician "…was really a waste of time…I need help in the real world here." M1 felt the advice she received from the dietician was not applicable to her situation. She felt that the dietician simply repeated the general advice that M1 already knew and did not teach her how to make it applicable. M3 had this to say about her interaction with a dietician: "I don't think it was successful. I am in the healthcare field where I can say, well I know the Canada Food Guide, like I can follow the Canada Food Guide…" Parents felt they were capable of reading Canada's Food Guide themselves and did not need to sit through a session where the dietician simply went over those same guidelines. These parents want more.

Parents also felt their visits with dieticians left a bad taste in their children's mouths. M9 said, "Um, we didn't really like [the session], [my daughter] felt very intimidated by this lady…" M10 described her visit with a dietician as, "… a horrible experience, the woman was very condescending and she was rude and she didn't talk to [my daughter]…" Although the purpose of the visit was to discuss her child's eating behaviours, M10 said that the dietician only talked to her. "…She treated [my daughter] like she wasn't in the room and she talked down to her, and then she said in front her, 'I think she has psychological problems and should see a psychologist.'" M10 added that when she left her daughter with the dietician for ten minutes while she ran to the parking metre the dietician did not speak to her daughter. M10's daughter told her that, "'[The dietician] didn't say anything to me, she was writing down, she didn't say anything to me.'" M10 said that for her daughter "…it was a horrible experience and…that was a big turn-off for her." Due to interactions like this, these parents and children have no interest in visiting with dieticians.

*Needing help from health professionals*. Most of the parents were aware they did not have the skills to provide the necessary tools needed for their children to lead a healthier lifestyle. Although these parents were not satisfied with their previous interactions with health professionals, nine parents admitted to needing help from someone else to get the health messages across to their child. This someone else that they are looking for is likely a health professional with authority and knowledge in the area of healthy behaviours. M3 acknowledged her daughter needs motivation and that, "I can [only] motivate her so much. I'm not the best person all the time, because I do have my own weight issues too." M3 found it difficult to justify health messages to her daughter

because she was overweight herself. M3 also felt that, "Sometimes I don't make sense." These parents want their children to hear from an expert trained to discuss the difficult issues of weight management.

Parents were also tired of being the 'bad guy' who was constantly denying their children of guilty pleasures. They felt their children would take the information more seriously from someone else. M5 said she wanted her daughter to hear from "…somebody…that is not making us out to be the bad guy, taking away all of these privileges, taking away the snacks, you know, because then we get the behaviour problems, which we are now having with [my daughter]." This parent felt the more she denied her daughter the worse the daughter behaved. M5 wanted someone else to take away these 'privileges', "To help [our children] understand…it's not [mom and dad] being mean to them, it's for their own good…"

M10 discussed the difficulties of dealing with a teenager who does not think that her parents are always right. M10's daughter will go to M10 for health advice and, "I'll tell her, but I'm her mom, but if you told her she'd believe it sooner…" M10 explained that it is not that her daughter does not believe her, it's just that, "…it must really be true if somebody else has told [her] too…or if a friend had told her or something like that." In short, these parents felt they were not effectively getting messages about health across to their children. For this reason they seek help from experienced and educated health professionals.

*Increased social support through treatment.* Parents also want health professionals to assist with increasing their children's social support. Parents believed that one way to increase their child's social networks would be to have them participate

in weight management programs that involve meeting other children like themselves and helping them feel like they belonged and were not alone. M1 wanted her son involved in a program that would be "...really supportive, whatever we could do so he doesn't feel alone. I mean not alone..." These parents have acknowledged their children have no friends and they do not want their children to suffer through weight management issues on their own. They also do not want their children to feel like outsiders and want them to realize that there are other overweight children dealing with the same issues.

M19 felt her daughter needed "a support group...people that are of the same age so that they realize that they're not alone, there are other kids out there...having some peers around to talk to..." M19 acknowledged the importance of having one-on-one, personalized attention; however she also felt that "...it would be kind of neat to have, kids to be able to get together as well and talk and say, you know this is my struggle, this is what I've gone through and this is how I've coped with it..." F17 was a strong believer that the focus of treatment should be having fun and building social networks while the weight management would be an added bonus. F17 said, "...something that [the overweight kids] can all enjoy, that's active, companionship focused, and that is fun, that they can do without feeling like they're all losers." F17 felt his daughter was never able to feel like a 'winner' when she attempted to participate in physical activity with other children of 'normal' weight. For this reason, he proposed an activity group devoted to overweight children. F17 explained, "...some activity in that level of, we're all doing it together, we're all sweating together, we're all winning together..." Although the idea would be weight management, F17 added, "You focus on 'I'm having a heck of a lot of

fun.' And ah I think that's where you would end up with a lot of powerful wins [with weight management]."

Support groups for the parents of overweight children were also mentioned. M10 acknowledged she would find it helpful to speak with other parents who were dealing with similar issues. M10 felt her family's weight issues were a very emotional thing that was hard to deal with because "…it's not something you talk to everybody about, you don't talk to everybody and say yah my kid's really overweight…you don't..." This mother wanted to share her feelings with other parents of overweight children. M5 compared the type of support she was looking for to a 'moms-and-tots' group, "…where you go and…like share ideas and just because it didn't work for that kid and it might have worked for two other parents, kind of thing, but to do with overweight kids." Not only do these parents want support for their overweight children, they want support for themselves as parents.

*Family centred treatment*. One health care option that 10 of the parents seemed very interested in pursuing was family centered treatment (See Table E1.). Although parents acknowledged their child does need some one-on-one, individualized treatment, they stressed the fact that their entire family needs help as a whole. When discussing how an overweight child should lose weight and be healthy, M4 said, "…really it's not just the child, it's the whole family that has to work and be healthy, that is how I look at it." M4 felt very strongly that, "…it has to be a team effort. You can't just have one person doing something a certain way. If you have a big chocolate bar in your hand, and that [overweight] person is eating a salad." M4 did not feel that it was fair to single out her daughter to deal with her weight issues. Instead, she wanted to approach it as a family.

M11 believed that the secret to getting an overweight child to lose weight and stay healthy was to "Spend more time with your kids. More family time…that makes a difference." F11 agreed and added, "Yeah, the parents definitely have to get involved with it too. They have to foster the environment…keep healthy food in the house…go exercising with their child." M11 and F11 felt they needed to get involved in a weight management program with their daughter in order to make sure they were doing the right things at home to support her. F11 also said, "And of course the first line of support should be from the family. So if your child is not motivated to do it by themselves, um then you have to create the environment and make sure that the healthy snacks are there."

When M18 was told that the programs at the PCWH had parent sessions as well, she said, "…I'm so anxious for that. And [my husband] is as well…" M18 then talked about the importance of having both parents attend the information sessions:

> I used to go to many, many conferences with parents and I was alone and…after a while I stopped going simply because I'd turn around and try to tell my husband what happened in the weekend in an hour. You know all of the enthusiasm that I gathered and gave to him, it's all second hand and you can't…give that positive or what the speakers giving to me was not necessarily going to be interpreted the same way by [my husband] if he had of been there.

A quote from M19 summed up what these ten parents were trying to say: "I just keep thinking back [to our situation], and I'm like oh my [gosh], we all need help." These parents are aware that sending their overweight child for treatment is not going to be enough to target weight issues. Their whole family is going to have to make lifestyle

changes to alter their home environment so that it is suitable for fostering healthy lifestyles.

Overall parents were unsatisfied with the interactions they had so far with health professionals and wanted changes made in the way that physicians and dieticians handled childhood overweight. These changes are especially important because the parents were aware they needed help from health professionals to impart the correct messages and change their families' lifestyles. In addition to getting messages across to children, these parents also wanted social support to be increased through treatment. Parents felt that increasing social support would assist their children in dealing with weight issues. Finally, parents want intervention programs delivered to their entire family as a whole. They feel the most effective treatment will involve changing behaviours as a family. In conclusion, parents feel these changes would reflect their treatment preferences.

*Support Through Policies and Programs*

Eleven parents (see Table E1.) pointed fingers at the government to change policies at the facility level, as well as within the schools and food industry to make weight management easier for their children. Parents wanted the government to take some responsibility by recognizing the increasing rate in childhood overweight and taking action.

*Accessible and affordable facilities.* Parents felt that the government should increase the opportunities for physical activity in the community. M6 wanted, "...more physical activity programs that aren't made for the rich. Because...we've got schools all over this city, and they don't open their gyms up at night for community basketball...[so] we don't have to go in and spend [money for sports leagues]..." Cost was an issue for

parents like M6. Although she would like to enrol her daughter in physical activities, she said, "…I don't have the money for the fees, I don't have money for the equipment" As an alternative M6 "…will try and do something that is less expensive, we'll go swimming, we go sledding, skating, you know, stuff that doesn't cost us an arm and a leg…" M6 felt that it was the government's responsibility to step in and make activities more affordable. She added, "…these politicians got to realize that instead of giving us this 400 dollars back, take it and make some programs so that our children are healthy…they talk about health care, well, it starts with the children…" M6 suggested that the government "…open [facilities] up, give [children] free karate lessons…" M8 laughed when asked about physical activity. She felt that, "…the community doesn't offer a whole lot in the way of exercise programs, you know things like that. I mean they, they have the rink open during the winter time, but that's about it." M8 felt that the government needed to make "…more things available" so that her son would have some place to go. M8 elaborated on the lack of accessibility with this story:

> …We biked down to the zoo one day and then came back up the bike path…we got half way back we found the gates were locked and you're not allowed to cross because its past park hours or something like that…I'm just finding that the stuff that he wants to do…like…archery…the closest archery place is Sherwood park. There's not a whole lot in the city. If you've got a car and can go to surrounding areas, that's fine, but, uh, the city itself doesn't have a whole lot.

M8 felt that the city was not doing enough to promote activity to the public and they were not doing their part to make facilities easily accessible.

*School system*. Seven parents believed that changes had to take place specifically within the school system. These changes would revolve around healthy eating and physical activity, as well as eliminating children's negative attitudes towards overweight children. When talking about getting her daughter to eat more vegetables and fruits, M20 said, "I think that they should um bring more programs into the school." M20 talked about a school-based program that she thought was successful and should have continued:

> …The government sponsored a lady to come into our school about…and it was a fruit and vegetables program, trying to get them to eat the five to ten…she just taught the kids about healthy eating with the fruits and vegetables. And they had charts and…they wanted [the children] to have at least four fruits or vegetables in their lunch…and only 100 percent fruit juice…

M20 explained that prizes were awarded to encourage children to eat vegetables and fruits which really motivated the children to stick to the program. However, this program only lasted a year and M20 felt that it should be a permanent fixture in the school system.

M4 expressed her disgust with the types of foods available at her daughter's school. She said, "…those hot lunches once a month are a bad example of nutrition." M4 then described the foods that are made available to the children: "They are pirogues, sausages all fattening foods it's revolting. There is nothing nutritious in a hot lunch, its ridiculous….in their snack thing at school….it's always a special treat or some sort of junk."

In terms of physical activity in the schools, parents such as M3 felt that "more physical activity would be best, because I think in a lot of schools they have gone down

in that." Parents explained that their children were only getting physical activity twice a week at school and this was not enough. M1 suggested that "maybe [schools] should have gym everyday. Different types of activities. Like I know the school that [my son] is in now they do do different types of things…but he only gets it a couple of times a week." M14 felt that school actually got in the way of her daughter's physical activity. M14 claimed that her daughter had always been active and only "…started to put on weight when she started school…and it's because she was sitting all day. That's something I believe anyway." M14 added, "I think there should be an hour [of physical education in the schools] everyday. Like really, ideally that's what they need to do." These parents really felt that it was the school's responsibility to ensure that their children remained active throughout the school day, instead of just sitting in class all day.

There was also a belief among parents that overweight stigma/bias should be addressed in school curriculum. Just as schools work to educate children on the negatives of bullying, smoking and alcohol use, children should be educated on how to treat their overweight peers. M1 talked about her son's school and what they were doing to combat racial labelling and how she felt that this could be transferred to combating overweight stigma/bias. M1 said, "They're working on that where everyone is individual, [so] don't label. [School's should also address when] somebody's overweight, skinny, short, tall whatever. So I think it's gotta be in the school system where that is the focus." M1 also felt that teachers should be providing individual "…support for those kind of [overweight] children. You know a child is seen as [lacking] self esteem because of their weight or whatever, those children should be nurtured quietly, encouraged." M1 reiterated, "I think it has to be the schools."

M5 had a similar request and came up with the idea that "…a guest speaker comes in [to the schools] and explains that people come in different shapes, sizes and you know this kind of thing." M5 felt that having a doctor, nurse or other health professional come in "to really drill to the kids, that just because you are [overweight]…doesn't mean that…it's wrong and it's not right and it's bad and they're ugly and this that and the next thing." M5 was suggesting "…an information session basically" where children and parents can come to learn about dealing with overweight people.

*Food industry*. In addition to government and school policy, parents wanted to see changes made in the food industry that would make healthy eating a lot easier. Parents of children who were learning to cook found that the only meals their child felt confident in preparing were the instant prepared types (e.g., macaroni and cheese). According to M8, her son was at the point where, "…he doesn't have to rely on mom to come home and make supper, and that's really nice…" However, M8 acknowledged that her son's abilities were very limited to unhealthy options. She added, "…I need to keep more things in the fridge that are easier for him to prepare, like if he could throw a pork chop into the oven, you know, it would be much better for him than Mr. Noodle." When talking about ways to get her son to eat more vegetables and fruits, M15 revealed that, "…it has to be really easy for him…like we have to cut up cantaloupe, watermelon into bite sized pieces and put it into Rubbermaid's in the fridge, and then he'll go in and get it…" Without this preparation, it was very unlikely that M15's son would opt for the healthier choice of snacks. M15 added, "it can't be something that he has to prepare...it has to be something easy like that and then he seems to want to make it as a choice because it is convenient."

M20 felt that one of the roadblocks to healthy eating was the difficulty in finding healthy and convenient snacks at the grocery store. M20 said, "…it's kinda hard to find juice that's one hundred percent fruit juice. Like, I don't know, maybe outta like 10 or 20 there'd be two choices for 100 percent juice." These quotes demonstrate the frustration that parents have in trying to make healthy eating an easy option for their children. Parents want the government, school system and food industry to take appropriate steps to make their children's weight issues easier to deal with.

Overall, these parents felt that assistance from the government in the form of policy changes was essential to effectively combat childhood overweight. There was a belief that accessible and affordable facilities within the community would benefit children, especially those whose parents could not afford regular sport registration fees. Parents also felt that the school system should be responsible for educating children in physical activity, healthy eating, and overweight stigma by altering the curriculum to include these important issues. Finally, parents believed that healthy eating would be a lot easier if the food industry made it easier by providing more healthy options that are easily accessible and easily prepared. In conclusion, these parents wanted healthy living to be made easier as a result of policy level changes.

# CHAPTER 5. DISCUSSION

The purpose of this study was to gain a deeper understanding of the lived experiences of parents of overweight children and the challenges these parents face. The ultimate goal was to inform the design of effective family-based weight-loss interventions. Specifically, the parents of overweight 5-16 year old children engaged in semi-structured interviews regarding the challenges associated with managing overweight in the family environment, school environment and out-of-school environment, as well as, nutritional practices, and treatment preferences. The results showed some complex, and largely ineffective, examples of parenting practices that were apparently intended to influence overweight children's food consumption and physical activity engagement. A lack of structure was evident at the family level; a characteristic that is typical of families of overweight youth (Zeller et al., 2007). Some insight to the resistance to reduce screentime was obtained and a desire for increased social support was expressed. Furthermore, parents wanted more support from health care professionals as well as support at the policy and program level.

A number of categories were identified and categorized by different themes. In the first category parents reported that they actually *lacked the skills and knowledge to promote healthy eating*. Time management played an important role in this respect. Parents felt that they simply could not find time in the day to provide healthy meals and snacks for their children. When parents arrive home exhausted prior to dinnertime, they are not interested in the labour-intensive preparation of food. Spending more time at work means that there is less time and energy to be spent on activities like food preparation (Chou et al., 2002). Second, the parents demonstrated negative role modeling around

eating behaviours by eating the types of foods that they were trying to get their children to cut back on (e.g., chocolate bars). Kremers, van der Horst and Brug (2007) demonstrated that parents significantly influence their children when they demonstrate norms towards consumption behaviours. By modeling unhealthy eating behaviours parents are reinforcing these behaviours in their children. Together, negative role modeling and time management made it difficult for parents to promote healthy eating.

Parents *lacked the skills and knowledge to promote physical activity.* Similar to the first category, parents reported that time management was one of the barriers inhibiting the promotion of physical activity. Between work-related commitments and household chores, parents felt they hardly have enough time to relax. Going out and getting active with their children is not a priority when there are so many tasks that have to get done (e.g., laundry). Hesketh et al. (2005) also reported lack of parent time as a barrier to children participating in physical activity. Furthermore, parents are acting as negative role models by engaging in sedentary behaviours when their children are around or choosing to be sedentary rather than active with their children. Similar to the evidence in eating behaviours, Kremers et al. (2007) showed that when parents set a norm towards television viewing, this influences the viewing habits of their children. Thus, parents must consciously model healthy screen time behaviours and physical activity in order to have a positive influence on children. Time management and negative role modeling acted as barriers for parents, inhibiting the promotion of physical activity to their children.

One possible reason for parents' lack of skill could be the confusion surrounding healthy eating and physical activity messages. Hesketh et al. (2005) found that unlike the

clear and consistent messaging behind anti-smoking campaigns, health related messages are often conflicting. For example, only the negative health consequences of smoking are advertised while unhealthy food choices are made to look attractive and enticing.

Although parents recognized they lacked some essential skills and knowledge, many still attempted to influence their children's healthy eating and physical activity. Often these parenting practices reflected *extremes of control and leniency.* In this regard, Baumrind (1991) describes three types of parenting: authoritarian, authoritative, and permissive. Authoritative parents make demands of their children and respond to their children, through monitoring and providing structure. Moreover, authoritative parents communicate with their children and have healthy expectations. On the other hand, authoritarian parents make demands and are directive but do not respond to their children (Baumrind, 1991). Permissive (or lenient) parenting is described as being more responsive than demanding. Lenient parents do not require children to exhibit mature behaviour, allow substantial self-regulation, and avoid confrontation. The results of the current study suggest that parents were wavering between authoritarian and permissive styles of parenting, but not demonstrating the monitoring skills or providing the structure that authoritative parents should.

Third, parents reported *extremes of control and leniency around healthy eating* (relating to food selections and portion size). Arredondo et al. (2006) and Wardle, Guthrie, Sanderson, Birch and Plomin (2001) suggested that parents who monitor and reinforce healthy behaviours have children who eat more healthy foods and less unhealthy foods. Parents described situations where they would have their child on a strict diet or would limit the food choices in the house by only purchasing 'healthy'

foods. On the contrary, parents also acquiesced to their children's indulgences in 'unhealthy' foods. Usually acquiescing occurred because the parents could not get their child to eat anything else so they were happy that the child was at least eating something. The mealtime struggle described by parents is similar to the findings of other researchers. For instance, Zeller et al. (2007) found that mothers of obese children described mealtimes as more challenging behaviourally than the mothers of non-obese children. As a result, the parents of overweight children are reluctant to plan or look forward to the family meal.

In addition to showing extremes of leniency around food choices, parents also acknowledged a lack of control around portion sizes. Parents were unable to prevent their children from overeating during snack and meal times. These findings add to the evidence that parents need to be taught effective behaviour management strategies, especially around mealtimes, as part of an effective weight management program (Zeller et al., 2007). Similarly, Arredondo et al. (2006) reported that authoritative parenting styles characterized by the use of appropriate discipline were associated with eating healthier foods. Whereas, authoritarian parenting characterized by highly directive, demanding and strict discipline, increased a child's risk for overweight. Lenient parenting was reflected in the lack of structure and monitoring displayed by parents in the current study.

The fourth category reflected similar ideas as the third, demonstrating *extremes of control and leniency around sedentary behaviours/physical activity* (relating to screen time and controlling physical activity). Parents reported little control over their children's screen time activities, especially on weekends. Children were permitted to watch

television for as much as 24 hours per day, as the television was even left on throughout sleep times. In a study of children's television viewing habits, Jordan et al. (2006) found parents rarely set rules limiting the time children spent in front of a television; even less restrictions were imposed on weekends. Interestingly, this category also revealed parents felt that television was important for their children's social lives because it gave them something to talk about with other children. This is important because the children already lack social support and parents did not want to take away what little social support they had. Jordan et al (2006) reported that parents depended on the television to give them something to talk about with their own children. Thus, television seems to play an important role in families' lives which increases the challenge of removing television from daily activities.

Although parents either did not set or follow through on any rules or limits surrounding screen time, they often attempted to use extremes of control around physical activity. Parents enrolled their children in physical activities in an attempt to combat the children's weight issues. At times, these activities were chosen against the will of the child. Even though parents were aware that their child did not enjoy the activity, the child was often forced to participate. Conversely, some parents prevented their children from participating in certain physical activities because of concerns about injury or health risks. Thus, parents did not allow their children to be exposed to a physically active lifestyle. Arredondo et al. (2006) reported that the children of parents who reinforced and monitored healthy behaviours were more physically active than parents who used a more controlling parenting style. In the end, the parenting strategies revealed in this study,

whether controlling or lenient, did not appear to be effective in promoting healthy food choices or participation in physical activity.

The fifth category reflected the *parents' perceptions that children are lacking social support* in their daily lives. Parents felt that this lack of social support had implications for weight management. In general, the results demonstrate the parents' belief of an overweight stigma towards their children. Consistent with other research (Koplan et al., 2005; Strauss et al., 1985), this stigma/bias was exhibited by the general public, teachers, as well as other children. Parents felt that their children were generally treated negatively or differently due to their size. In addition to being treated negatively, parents acknowledged that their children had no friends. Similar to other findings (Latner, & Schwartz, 2005), these overweight children were often excluded from the core groups at school and were forced to seek social support with the other 'outcasts' on the periphery. In addition to having fewer friends, teasing was an issue for the overweight children in this study, which has also been demonstrated in other research (Daniels et al., 2005; Latner & Schwartz, 2005). Parents in this study also believed the lack of friends had a negative impact on their children's participation in physical activity. Having no friends meant that there was no one to play with and no one to motivate these children to get off the couch and outside to play. Furthermore, parents did not feel safe having their children outside playing alone as Barlow and Dietz (1998) and Koplan et al. (2005) demonstrated. Therefore parents do not encourage outdoor physical activity. Overall, parents in this study felt that their children lacked social support and believed this had a negative impact on the childrens' well being.

The sixth category referred to parents' *treatment preferences*. This category revealed negative interactions parents had with health professionals in the past, and what these parents expected from health professionals in the future. Parents reported a lack of support from family physicians. This could be a result of physicians avoiding the issue of overweight due to the associated stigma, which results in parents feeling blamed and the possible onset of an eating disorder for the children (Dietz & Robinson, 2005). In some cases physicians told parents not to worry about their child's weight because he/she would grow into it. According to Dietz et al. (2002) many physicians do not understand the implication of obesity as a disease that affects childrens' mental and physical health. At other times, physicians gave negative feedback and told parents that there was nothing they could do about the weight issue. This is consistent with a study by Edmunds (2005) who reported that many parents felt health professionals were unsure of how to approach the issue of childhood weight management. It is possible that a lack of agreement among health professionals about the standards of practice for treatment of obesity (Barlow & Dietz, 2002; Dietz, 2002) may contribute to these negative interactions with physicians. This is a reflection of the lack of evidence-based treatment and prevention of childhood overweight that can be used to better inform health professionals (Edmunds, 2005).

Parents also reported that their visits with dieticians were a waste of time. The dieticians would simply go over Canada's Food Guide and not educate the parents on ways of incorporating healthy foods into their lives. Parents felt they already knew what to do and they needed the dieticians to tell them how to do it. This is consistent with Edmunds (2005) findings that parents were disappointed or frustrated that health professionals had little to add to parents' existing knowledge. Furthermore, Daniels et al.

(2005) acknowledged it is difficult for parents to consistently judge calorie consumption and expenditure on a daily basis. Thus, parents need sufficient guidance to monitor and influence the physical activity and eating patterns of their children. Dieticians must take into consideration the uniqueness of every family's culture, living environment, and SES (Daniels et al., 2005). Parents need strategies to encourage their children to eat healthier foods as well as strategies to resist the demands of their children for unhealthy foods (Hesketh et al., 2005). Furthermore, parents were disappointed in dieticians for ignoring their children. Some dieticians talked about the child right in front of the child, but not directly to the child. Parents expect the dieticians to talk to the children directly to make them feel like they are involved in the process. According to Daniels et al. (2005), it is important to include children and families in the self-management of the child's overweight by allowing the child and family to set their own goals while guided by the health professional. A child should feel involved in their own weight management. Establishing positive relationships with parents and children is essential if health professionals want to engage in successful child weight management (Edmunds, 2005). When health professionals show interest and maintain a positive attitude, successful results are seen in childhood weight management (Edmunds, 2005).

Parents also expressed the need for better help from health care professionals to get health related messages across to their children. Parents felt that their children were tired of being nagged by their parents to eat healthy and be active. Parents were tired of being the 'bad guy' and felt that health related messages would be taken more seriously by their children if it came from a health professional. Parents also wanted treatment that focused on increased social support for their children. Since parents believe that their

children are not receiving enough social support, they want programs that will help their children to realize that they are not alone. However, there was also a request for treatment that will allow the parents to feel socially supported by others as well. Similarly, after delivering a family based behavioural treatment, Edwards et al. (2006) found that families valued the support they were able to receive from other families in similar situations. Programs featuring a group component could help overweight children to foster friendships and social networks with other children who are dealing with the same struggles. However, parents also acknowledge that one-on-one individualized treatment is necessary.

Finally, parents admitted that their families need treatment as a whole and that any successful lasting behaviour changes must include the whole family. This finding is consistent with those reported by Hesketh et al. (2005). Furthermore, Zeller at al. (2007) pointed out that treating both parent and child together could improve the efficacy of the treatment of the child throughout weight management. Providing family-centred treatment should be a priority. Finally, parents are expecting changes to be made at the *policy level*. Parents want to see the cost of physical activities and healthy foods decreased. Parents are looking for school gym facilities to be accessible at night for free. They feel it is the government's role to provide equal opportunity for everyone to be active in their neighbourhoods, as not everyone can afford the registration fees for organized sports. As Swinburn and Egger (2002) pointed out, neighbourhoods are a primary location for active recreation. Local government have a variety of options for enhancing recreational space, such as extending walking and cycling paths, increasing safety (e.g. improving lighting), adding innovative facilities (e.g., skateboarding parks),

increasing aesthetics and reducing crime in neighbourhoods (Swinburn & Egger, 2002). Environmental and policy approaches are based on the idea that interventions will be more effective if social and physical environments are altered so that healthier choices become the easier choices (Daniels et al., 2005). Hesketh et al. (2005) found that parents wanted more facilities in greater varieties, especially since parents perceived the size of backyards has decreased.

Furthermore, the parents in this study expect the food industry to make preparing healthy meals easier as well as increasing access to healthier choices, such as 100% fruit juice. The food sector involves all levels of government and governments have access to price-policy instruments to influence consumer buying patterns (Swinburn & Egger, 2002). Through subsidies and taxes, governments provide healthy options and opportunities for their children. For example, the North Carolina Prevention Partners (NCPP) have developed the Winners Circle Healthy Dining Program which helps people in the community combat obesity by identifying and promoting healthy choices in restaurants, schools (e.g., breakfast and lunch programs and snack machines) and convenience stores through consistent, credible, and easily recognized nutrition guidance for consumers (see Dietz et al., 2002).

Parents also want policies changed in the schools so that more physical activity will be made mandatory and children will be educated about healthy choices around food and activity. Veugelers and Fitzgerald (2005) found a prominent association between obesity levels and the frequency of physical education classes in Nova Scotia schools; suggesting an increase in physical education classes could assist in combating childhood overweight. According to Daniels et al. (2005), the role of teacher training, along with

parenting skills, in helping children learn and practice healthful behaviours is being increasingly recognized. Perhaps some of the parents requests for the school system to play a larger role are justified as children spend the majority of their days in school. Also, Hesketh et al. (2005) have found that children believe anything permitted in school is healthy and parents expect schools to set a good example. Thus, ensuring that healthy choices and healthy education are available in the schools should be a primary concern as schools provide a unique environment for intervention. These findings demonstrate the need for policies that increase the frequency of physical education classes and health promotion education in schools.

The challenge at the policy level is to identify obesogenic environments and modify these environments so that healthier options are readily available, easier to access and extensively promoted to a majority of a neighbourhood (Swinburn & Egger, 2002). Successful interventions such as Planet Health in Boston, MA, have managed to integrate health promotion curriculum into existing school curricula (see Dietz et al., 2002). Students participating in Planet Health demonstrated a reduction in obesity, increased fruit and vegetable intake, as well as a reduction in television viewing time. Parents appear to be seeking a socio-ecological solution to overweight (Dietz et al., 2002) including primary prevention, access to the right care, and policies to change the nutrition and physical activity environments. Dietz and Robinson (2006) emphasize the importance of policy changes because without efforts to increase the safety of neighbourhoods or physical education in schools, efforts to increase physical activity may not succeed.

*Limitations*

A few limitations were present in this study. Because the child participants were recruited from the wait-list at the PCWH, the findings of this study reflect the views of self-selected parents who were aware of their child's overweight and who sought treatment. These parents were all clearly concerned with their child's weight. The views of these parents may not reflect those of parents with overweight children in general. Furthermore, the primarily Caucasian sample limits the generalizability of the findings. Although the sample contained the specific subgroup that we were interested in (i.e., the parents of overweight children), it may not be a representative sample of all the parents of overweight children in the Capital Health Region (i.e., Edmonton and area). Perhaps in the future a population-based survey can be used to increase generalizability. Nevertheless, our findings can be applied to similar families entering the programs at the PCWH in the future.

Another limitation was that the parents interviewed were primarily mothers. As both parents were invited, this may reflect a limited involvement of the fathers in their child's weight management. However, it would still have been useful to include more fathers' perspectives in our results.

Finally triangulation was done using two self-reports (i.e., parent and child), with no objective measure for verification. However, steps were taken to limit the amount of response bias: the child and parent were separated for their individual interviews, assured of the anonymity of the study, and informed that their honest answers would lead to better programs at the PCWH for which they were on the wait-list. The practical

limitations of the study included the amount of time needed to transcribe and analyze the data as well as the difficulty in recruiting participants.

*Implications*

The implications of this research are a potential increase in adherence to weight loss intervention programs, as well as the achievement and maintenance of healthy weights among overweight children. Combating childhood overweight is essential because more than one quarter (26%) of young Canadians, ages two to 17 years old, are overweight or obese (Shields, 2006). Incorporating the families of overweight children into this qualitative research may help with determining how to design appropriate programs for implementation and evaluation instead of using a 'one-size-fits-all' approach (Thomas, 2006). For instance, teaching authoritative parenting practices could assist parents in successfully adopting behaviour changes learned in interventions and help parents to incorporate these changes into the home environment.

Understanding the resistance to reducing screentime is another important implication. Simply requesting that parents and children cut down on screentime may not be successful unless interventionists acknowledge that a certain amount of value (e.g., social importance) is associated with screentime in the household. Furthermore, providing opportunities to increase social support is necessary and could potentially be used to replace the social value associated with screentime.

Similar to Barlow and Dietz (2002), the findings in this study also suggest that educational tools to improve treatment from health professionals by increasing their confidence in dealing with childhood overweight are necessary. In addition, standardized forms or checklists could be developed and tested to ensure that all health professionals

follow the same guidelines when assessing childhood overweight (Barlow & Dietz, 2002).

Finally, lobbying for policy and program level change could successfully complement childhood weight management attempts by making facilities affordable and accessible, while bringing the school system and food industry on board. Parents felt that this combined effort could possibly lead to weight management success.

*Conclusion*

Parents of overweight children want help with promoting physical activity and healthy eating along with the support to sustain motivation in physical activity and healthy eating (Edmunds, 2005). Overall, this inability to promote healthy eating and physical activity in the household seemed to promote an obesogenic environment, which Swinburn and Egger (2002) refer to as the predominant driving force behind the obesity epidemic. Thus more attention and research is needed in the area of combating obesogenic environments. Although the family dynamic effects weight management (Davison & Birch, 2001), Zeller et al. (2007) argue more research is required to determine the exact role family functioning plays in pediatric weight management outcomes. In addition, the exact type of family participation that leads to success must be identified. Furthermore, families may benefit from health professionals who acquire a better understanding of childhood overweight as well as the broader issues surrounding overweight, including parenting and family dynamics (Edmunds, 2005). Finally, because community-level factors and policies can influence children's food consumption and physical activity patterns, more research is needed at the community level (Hawkins & Law, 2006). Childhood overweight must be addressed at many levels, including familial,

community and policy. With the awareness that childhood overweight requires a multi-disciplinary approach, multi-disciplinary programs like those at the PCWH are the way of the future and warrant the utmost attention in weight management research.

References

Affenito, S. G., Thompson, D. R., Barton, B. A., Franko, D. L., Daniels, S. R., Obarzanek, E., Schreiber, G. B., & Striegel-Moore, R. H. (2005). Breakfast consumption by African-American and white adolescent girls correlates positively with calcium and fiber intake and negatively with body mass index. *Journal of the American Dietetic Association, 105*, 938-945.

Agras, W.S., Hammer, L. D., McNicholas, F., & Kraemer, H. C. (2004). Risk factors for childhood overweight: A prospective study from birth to 9.5 years. *Journal of Pediatrics, 145*, 20-25.

Anderson, P. M., Butcher, K. F., & Levine, P., B. (2003). Maternal employment and overweight children. *Journal of Health Economics, 22*, 477-504.

Anderson, P. M., Cohen, P., Naumova, E. N., & Must, A. (2006). Association of depression and anxiety disorders with weight change in a prospective community-based study of children followed up into adulthood. *Archives of Pediatrics & Adolescent Medicine, 160*, 285-291.

Ariza, A. J., Chen, E. H., Binns, H. J., & Christoffel, K. K. (2004). Risk factors for overweight in five- to six-year-old Hispanic-American children: A pilot study. *Journal of Urban Health, 81*, 150-161.

Arredondo, E. M., Elder, J. P., Ayala, G. X., Campbell, N., Baquero, B., & Duerksen, S.

(2006). Is parenting style related to children's healthy eating and physical activity in Latino families? *Health Education Research: Theory and Practice, 21*, 862-871.

Ball, G. D., Marshall, J. D., & McCargar, L. J. (2003). Fatness and fitness in obese children at low and high health risk. *Pediatric Exercise Science, 15*, 392-405.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review, 84,* 191-215.

Baranowski, T., Mendlein, J., Resnicow, K., Frank, E., Cullen, K. W., & Baranowski, J. (2000). Physical activity and nutrition in children and youth: An overview of obesity prevention. *Preventive Medicine, 31,* 1-10.

Barlow, S. E., & Dietz, W. H. (1998). Obesity evaluation and treatment; expert committee recommendations. *Pediatrics 102*:E29; http://www.pediatrics.org/cgi/content/full/102/3/e29.

Barlow, S. E., & Dietz, W. H. (2002). Management of child and adolescent obesity: Summary and recommendations based on reports from pediatricians, pediatric nurse practitioners, and registered dieticians. *Pediatrics, 110*, 236-238.

Barton, B. A., Eldridge, A. L., Thompson, D., Affenito, S. G., Striegel-Moore, R. H., Franko, D. L., Albertson, A. M., & Crockett, S. J. (2005). The relationship of breakfast and cereal consumption to nutrient intake and body mass index: the National Heart, Lung, and Blood Institute Growth and Health Study. *Journal of the American Dietetic Association, 105,* 1383-1389.

Baumgartner, T. A., Strong, C. H., & Hensley, L. D. (2002). *Conducting and reading research in health and human performance* (3rd ed.). New York, NY: McGraw-Hill.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *The Journal of Early Adolescence, 11*, 56-95.

Berkowitz, R. I., Stallings, V. A., Maislin, G., & Stunkard, A. J. (2005). Growth of children at high risk of obesity during the first 6 y of life: Implications for prevention. *American Journal of Clinical Nutrition, 81*, 140-146.

Birmingham, C. L., Muller, J. L., Palepu, A., Spinelli, J. J., & Anis, A. H. (1999). The cost of obesity in Canada. *Canadian Medical Association Journal, 160,* 483-488.

Bosch, J., Stradmeijer, M., & Seidell, J. (2004). Psychosocial characteristics of obese children/youngsters and their families: Implications for preventive and curative interventions. *Patient Education and Counseling, 55*, 353-363.

Brann, L. S., & Skinner, J. D. (2005). More controlling child-feeding practices are found among parents of boys with an average body mass index compared with parents of boys with a high body mass index.

Burdette, H. L., Whitaker, R. C., Hall, W. C., & Daniels, S. R. (2006). Breastfeeding, introduction of complementary foods, and adiposity at 5 y of age. *American Journal of Clinical Nutrition, 83*, 550-558.

Burke, V., Beilin, L. J., Simmer, K., Oddy, W. H., Blake, K. V., Doherty, D., Kendall, G. E., Newnham, J. P., Landau, L. I., & Stanley, F. J. (2005a). Breastfeeding and overweight: longitudinal analysis in an Australian birth cohort. *Journal of*

*Pediatrics, 147*, 56-61.

Burke, V., Beilin, L. J., Simmer, K., Oddy, W. H., Blake, K. V., Doherty, D., Kendall, G. E., Newnham, J. P., Landau, L. I., & Stanley, F. J. (2005b). Predictors of body mass index and associations with cardiovascular risk factors in Australian children: a prospective cohort study. *International Journal of Obesity, 29*, 15-23.

Cameron, N., Wright, M. M., Griffiths, P. L., Norris, S. A., & Pettifor, J. M. (2005). Stunting at 2 years in relations to body composition at 9 years in African urban children. *Obesity Research, 13*, 131-136.

Carver, C. S. & Baird, E. (1998). The American dream revisited: Is it what you want or why you want it that matters? *Psychological Science, 9,* 289-292.

Cassell, J. (1995). Social anthropology and nutrition: A different look at obesity in America. *Journal of the American Dietetic Association*, 95(4), 424-427.

Centers for Disease Control and Prevention. (2000). CDC *growth charts: United States.* U.S. Atlanta, GA: Department of Health and Human Services/Centers for Disease Control and Prevention.

Cecil, J. E., Watt, P., Murrie, I. S., Wrieden, W., Wallis, D. J., Hetherington, M. M., Bolton-Smith, C., & Palmer, C. N. (2005). Childhood obesity and socioeconomic status: a novel role for height growth limitation. *International Journal of Obesity, 29,* 1199-1203.

Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from

individualism and independence: A self-determination theory perspective on internalization of cultural orientations of well-being. *Journal of Personality and Social Psychology, 84,* 97-110.

Chou S.Y., Grossman, M., & Saffer, H. *An Economic Analysis of Adult Obesity: Results from the Behavioral Risk Factor Surveillance System.* Vol 9247. Cambridge, MA: National Bureau of Economic Research; 2002.

Classen, T., & Hokayem, C. (2005). Childhood influences on youth obesity. *Economics and Human Biology, 3,* 165-187.

Cole, T. J., Bellizzi, M. C., Flegal, K. M., & Dietz, W. H. (2000). Establishing a standard for child overweight and obesity worldwide: international survey. *British Medical Journal, 320,* 1240-1245.

Conner, M., & Norman, P. (2005). Predicting health behaviour: A social cognition approach. In Conner, M., & Norman, P. (Eds.), *Predicting health behaviour* (pp. 1-27). Berkshire, England: Open University Press.

Conway, T. L., Sallis, J. F., Pelletier, B. S., Powers, H. S., Marshall, S. J., Zive, M. M., & Elder, J. P. (2002). What do middle school children bring in their bag lunches? *Preventive Medicine, 34,* 422-427.

Craig, C. L., Cragg, S. E., Tudor-Locke, C., & Bauman, A. (2006). Proximal impact of Canada on the Move: The relationship of campaign awareness to pedometer ownership and use. *Canadian Journal of Public Health, 97,* S21-S29.

Daniels, S. R., Arnett, D. K., Eckel, R. H., Gidding, S. S., Hayman, L. L., Kumanyika, S.,

Robinson, T. N., et al. (2005). Overweight in children and adolescents. *Circulation, 111*, 1999-2012.

Danielzik, S., Czerwinski-Mast, M., Langnase, K., Dilba, B., & Muler, M. J. (2004). Parental overweight, socioeconomic status and high birth weight are the major determinants of overweight and obesity in 5-7 y-old children: Baseline data of the Kiel Obesity Prevention Study (KOPS). *International Journal of Obesity, 28*, 1494-1502.

Datar, A., & Sturm, R. (2004). Physical education in elementary school and body mass index: Evidence from the early childhood longitudinal study. *American Journal of Public Health, 94*, 1501-1506.

Davison, K. K., & Birch, L. L. (2001). Childhood overweight: a contextual model and recommendations for future research. *Obesity Reviews, 2*, 159-171.

Deci, E. L., Driver, R. E., Hotchkiss, L., Robbins, R. J., & Wilson, I. M. (1993). The relation of mother's controlling vocalizations to children's intrinsic motivation. *Journal of Experimental Child Psychology, 55*, 151-162.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Publishing.

Denzer, C., Reithofer, E., Wabitsch, M., & Widhalm, K. (2004). The outcome of childhood obesity management depends highly upon patient compliance. *European Journal of Pediatrics, 163*, 99-104.

De Shazer, S., & Berg, I. K. (1997). What works? Remarks on research aspects of solution-focused therapy. *Journal of Family Therapy, 19*, 121-124.

Dietitians of Canada, Canadian Paediatric Society, The College of Family Physicians of Canada, & Community Health Nurses Association of Canada. (2004). The use of growth charts for assessing and monitoring growth in Canadian infants and children. *Canadian Journal of Dietetic Practice and Research, 65*, 22-32.

Dietz, W. H. (1998). Health consequences of obesity in youth: Childhood predictors of adult disease. *Pediatics, 101*, 518-525.

Dietz, W. H., Bland, M. G., Gortmaker, S., L., Molloy, M., & Schmid, T. L. (2002). Policy tools for the childhood obesity epidemic. *The Journal of Law, Medicine, & Ethics, S30*, 83-87.

Dietz, W. H., & Robinson, T. N. (2005). Overweight children and adolescents. *New England Journal of Medicine, 352*, 2100-2109.

Dixon, L. B., Pellizzon, M. A., Jawad, A. F., & Tershakovec, A. M. (2005). Calcium and dairy intake and measures of obesity in hyper- and normocholesterolemic children. *Obesity Research, 13*, 1727-1738.

Doak, C. M., Visscher, T. L. S., Renders, C. M., & Seidell, J. C. (2006). The prevention of overweight and obesity in children and adolescents: A review of interventions and programmes. *Obesity Reviews, 7*, 111-136.

Dubois, L., & Girard, M. (2006). Early determinants of overweight at 4.5 years in a

population-based longitudinal study. *International Journal of Obesity, 30*, 610-617.

Eccles, M., Grimshaw, J., Walker, A., Johnston, M., & Pitts, N. (2005). Changing the behaviour of healthcare professionals: The use of theory in promoting uptake of research findings. *Journal of Clinical Epidemiology, 58,* 107-112.

Edmunds, L. D. (2005). Parents' perceptions of health professionals' responses when seeking help for their overweight children. *Family Practice, 10*, 287-292.

Edwards, C., Nicholls, D., Croker, H., Van Zyl, S., Viner, R., & Wardle, J. (2006). Family-based behavioural treatment of obesity: Acceptability and effectiveness in the UK. *European Journal of Clinical Nutrition, 60*, 587-592.

Epstein, L. H., Klein, K. R, & Wisniewski, L. (1994). Child and parent factors that influence psychological problems in obese children. *International Journal of Eating Disorders, 16*, 151-157.

Epstein, L. H., Myers, M. D., Raynor, H. A., & Saelens, B. E. (1998). Treatment of pediatric obesity. *Pediatrics, 101,* 554-570.

Epstein, L. H., Paluch, R. A., Kilanowski, C. K., & Raynor, H. A. (2004). The effect of reinforcement or stimulus control to reduce sedentary behavior in the treatment of pediatric obesity. *Health Psychology, 23*, 371-380.

Farley, T., & Cohen, D. (2001). Fixing a fat nation. *The Washington Monthly, 72,* 23-29.

Flick, U. (2002). *An introduction to qualitative research* (2nd ed.). London: Sage.

Flynn, M. A. T., McNeil, D. A., Maloff, B., Mutasingwa, D., Wu, M., Ford, C., & Tough, S. C. (2006). Reducing obesity and related chronic disease risk in children and youth: A synthesis of evidence with 'best practice' recommendations. *Obesity Reviews, 7,* 7-66.

Freedman, D. S., Dietz, W. H., Srinivasan, S. R., & Berenson, G. S. (1999). The relation of overweight to cardiovascular disease risk factors among children and adolescents: The Bogalusa Heart Study. *Pediatrics, 103*, 1175-1182.

Fuentes, R. M., Notkola, I. L., Shemeikka, S., Tuomilehto, J., & Nissinen, A. (2003). Tracking of body mass index during childhood: A 15-year prospective population-based family study in eastern Finland. *International Journal of Obesity, 27*, 716-721.

Fulton, J. E., McGuire, M. T., Caspersen, C. J., & Dietz, W. H. (2001). Interventions for Weight loss and weight gain prevention among youth. *Sports Medicine, 31,* 153-156.

Giacomini, M. K., & Cook, D. J. (2000a). User's guide to the medical literature: XXII. Qualitative research in health care. *JAMA, 284*, 357-362.

Giacomini, M. K., & Cook, D. J. (2000b). User's guide to the medical literature: XXIII. Qualitative research in health care. What are the results and how do they help me care for my patients? *JAMA, 284*, 478-482.

Gibson, D. (2006). Long-term Food Stamp Program participation is positively related to

simultaneous overweight in young daughters and obesity in mothers. *Journal of Nutrition, 136,* 1081-1085.

Golan, M. (2006). Parents as agents of change in childhood obesity – from research to practice. *International Journal of Pediatric Obesity, 1*, 66-76.

Golan, M. & Crow, S. (2004a). Parents are key players in the prevention and treatment of weight-related problems. *Nutrition Reviews, 62*, 39-50.

Golan, M., & Crow, S. (2004b). Targeting parents exclusively in the treatment of childhood obesity: Long-term results. *Obesity Research, 12*, 357-361.

Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 135-161). New York: Wiley.

Grolnick, W. S. & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. *Journal of Educational Psychology, 81*, 143-154.

Grummer-Strawn, L. M., & Mei, Z. (2004). Does breastfeeding protect against pediatric overweight? Analysis of longitudinal data from the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System. *Pediatrics, 113*, e81-e86.

Gutin, B., Riggs, S., Ferguson, M., & Owens, S. (1999). Description and process evaluation of a physical training program for obese children. *Research Quarterly*

*for Exercise and Sport, 70,* 65-69.

Hawkins, S. S., & Law, C. (2006). A review of risk factors for overweight in preschool children: A policy perspective. *International Journal of Pediatric Obesity, 1,* 195-209.

Health Canada. (2002). *Canada's Physical Activity Guide for Youth*. Health Canada, Minister of Public Works and Government Services. Retrieved March 12, 2006, from http://www.phac-aspc.gc.ca/pau-uap/paguide/child_youth/youth/guidelines.html

Hendersons, K. A., & Ainsworth, B. E. (2001). Researching leisure and with women of color: Issues and emerging questions. *Leisure Sciences, 23*, 21-34.

Hesketh, K., Waters, E., Green, J., Salmon, L., & Williams, J. (2005). Healthy eating, activity and obesity prevention: A qualitative study of parent and child perceptions in Australia. *Health Promotion International, 20*, 19-26.

Hesketh, K., Wake, M., Waters, E., Carlin, J., & Crawford, D. (2004). Stability of body mass index in Australian children: A prospective cohort study across the middle childhood years. *Public Health Nutrition, 7*, 303-309.

Jain, A. (2004). *What works for obesity? A summary of the research behind obesity interventions*. London: BMJ Publishing Group.

Janesick, V. J. (2003). The choreography of qualitative research design: Minuets,

improvisations, and crystallization. In N.K. Denzin & Y.S. Lincoln (Eds.), *Strategies of qualitative inquiry* (pp. 46-79). Thousand Oaks, CA: Sage.

Jonides, L., Bushbacher, V., & Barlow, S. E. (2002). Management of child and adolescent obesity: Psychological, emotional, and behavioral assessment. *Pediatrics, 110,* 215-221.

Jordan, A. B., Hersey, J. C., McDivitt, J. A., & Heitzler, C. D. (2006). Reducing children's television-viewing time: A qualitative study of parents and their children. *Pediatrics, 118*, 1303-1310.

Kagamimori, S., Yamagami, T., Sokejima, S., Numata, N., Handa, K., Nanri, S., Saito, T., Tokui, N., Yoshimura, T., & Yoshida, K. (1999). The relationship between lifestyle, social characteristics and obesity in 3-year-old Japanese children. *Child Care and Health Deviance, 25*, 235-247.

Katzmarzyk, P. T. (2002). The Canadian obesity epidemic, 1985–1998. *CMAJ, 166*, 1039 - 1040.

Katzmarzyk, P. T., Gledhill, N., & Shephard, R. J. (2000). The economic burden of physical inactivity in Canada. *CMAJ, 163,* 1435-1440.

Katzmarzyk, P. T., & Janssen, I. (2004). The economic costs associated with physical activity and obesity in Canada: An update. *Canadian Journal of Applied Physiology, 29*, 90-115.

Katzmarzyk, P. T., & Mason, C. (2006). Prevalence of class I, II, and III obesity in

Canada. *CMAJ, 174*, 156-157.

Kiefer, K. (2002). Childhood obesity: A lifelong threat to health. *Challenges for the 21st century: Chronic and Disabling Conditions, 3,* 1-6.

Kim J., Must, A., Fitzmaurice, G. M., Gillman, M. W., Chomitz, V., Kramer, E., McGowan, R., & Peterson, K. E. (2005a). Incidence and remission rates of overweight among children aged 5 to 13 years in a district-wide school surveillance system. *American Journal of Public Health, 95*, 1588-1594.

Kim, J., Must, A., Fitzmaurice, G. M., Gillman, M. W., Chomitz, V., Kramer, E., McGowan, R., & Peterson, K. E. (2005b). Relationship of physical fitness to prevalence and incidence of overweight among schoolchildren. *Obesity Research, 13*, 1246-1254.

Koplan, J. P., Liverman, C. T., & Kraak, V. I. (Eds.) (2005). *Preventing childhood obesity: Health in the balance.* Washington, DC: The National Academies Press.

Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *Journal of Personality, 52*, 233-248.

Krahnstoever Davison, K., Francis, L. A., & Birch, L. L. (2005). Reexamining obesigenic families: parents' obesity-related behaviors predict girls' change in BMI. *Obesity Research, 13*, 1980-1990.

Kremers, S. P. J., Brug, J., Vries, H., & Engels, R. C. (2003). Parenting style and adolescent fruit consumption. *Appetite, 41*, 43-50.

Kremers, S. P. J., van der Horst, K., & Brug, J. (2007). Adolescent screen-viewing behaviour is associated with consumption of sugar-sweetened beverages: the role of habit strength and perceived parental norms. *Appetite, 48,* 345-350.

Latner, J. D., & Schwartz, M.B. (2005). Weight bias in a child's world. In K. D. Brownell, R. M. Puhl, M. B. Schwartz & L. Rudd (Eds.), *Weight bias: Nature, consequences, and remedies,* (pp. 54-67). New York: The Guilford Press.

Lenk, J. M., Holt, N. L., Spence, J. C., Sehn, Z. L., & Ball, G. D. C. (2006). Treatment preferences of overweight children and their parents [Abstract]. *Obesity Reviews, 7 (Suppl. 2)*, 322.

Li, C., Kaur, H., Choi, W. S., Huang, T. T., Lee, R. E., & Ahluwalia, J. S. (2005). Additive interactions of maternal prepregnancy BMI and breast-feeding on childhood overweight. *Obesity Research, 13*, 362-371.

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage.

Lumeng, J. C., Gannon, K., Appugliese, D., Cabral, H. J., & Zuckerman, B. (2005). Preschool child care and risk of overweight in 6- to 12-year-old children. *International Journal of Obesity, 29*, 60-66.

Luo, J. & Hu, F. B. (2002). Time trends of obesity in pre-school children in China from 1989 to 1997. *International Journal of Obesity*, 26, 553-558.

Luszczynska, A., & Schwarzer, R. (2005). Social cognitive theory. In Conner,

M., & Norman, P. (Eds.), *Predicting health behaviour* (pp. 127-169). Berkshire, England: Open University Press.

Maffeis, C., Talamini, G., & Tato, L. (1998). Influence of diet, physical activity and parent's obesity on children's adiposity: A four year longitudinal study. *International Journal of Obesity, 22,* 758-764.

Mamabolo, R. L., Alberts, M., Steyn, N. P., Delemarre-van de Waal, H. A., & Levitt, N. S. (2005). Prevalence and determinants of stunting and overweight in 3-year-old black South African children residing in the Central Region of Limpopo Province, South Africa. *Public Health Nutrition, 8,* 501-508.

Mamun, A. A., Lawlor, D. A., O'Callaghan, M. J., Williams, G. M., & Najman, J. M. (2005). Family and early life factors associated with changes in overweight status between ages 5 and 14 years: Findings from the Mater University Study of Pregnancy and its outcomes. *International Journal of Obesity, 29,* 475-482.

Maykut, P. & Morehouse, R. (1994). *Beginning qualitative research: A philosophic and practical guide.* London: The Falmer Press.

Mays, N. & Pope, C. (2000). Qualitative research in health care: Assessing quality in qualitative research. *British Medical Journal, 320,* 50-52.

Mei, Z., Grummer-Strawn, L. M., & Scanlon, K. S. (2003). Does overweight in infancy persist through the preschool years? An analysis of CDC Pediatric Nutrition Surveillance System data. *Social and Preventive Medicine, 48,* 161-167.

Muller, M. J., Asbeck, I., Mast, M., Langnase, K., & Grund, A. (2001). Prevention of

obesity--more than an intention. Concept and first results of the Kiel Obesity Prevention Study (KOPS). *International Journal of Obesity, 25*, S66-S74.

Neumark-Sztainer, D., & Eisenberg, M. (2005). Weight bias in a teen's world. In K. D. Brownell, R. M. Puhl, M. B. Schwartz & L. Rudd (Eds.), *Weight bias: Nature, consequences, and remedies,* (pp. 68-79). New York: The Guilford Press.

Newby, P. K., Peterson, K. E., Berkey, C. S., Leppert, J., Willett, W. C., & Colditz, G. A. (2004). Beverage consumption is not associated with changes in weight and body mass index among low-income preschool children in North Dakota. *Journal of the American Dietetic Association, 104*, 1086-1094.

Ntoumanis, N. (2005). A prospective study of participation in optional school physical education using self-determination theory framework. *Journal of Educational Psychology, 97*, 444-453

O'Dea, J. A. (2005). Prevention of child obesity: 'First, do no harm'. *Health Education Research, 20,* 259-265.

Ong, K. K., Emmett, P. M., Noble, S., Ness, A., & Dunger, D. B. (2006). Dietary energy intake at the age of 4 months predicts postnatal weight gain and childhood body mass index. *Pediatrics, 117*, e503-508.

Patton, M. Q. (2002). *Qualitative evaluation and research methods (3rd ed).* Newbury Park; CA: Sage.

Potvin, L., Cargo, M., McComber, A. M., Delormier, T., & Macaulay, A. C. (2003).

Implementing participatory intervention and research in communities: Lessons from Kahnawake Schools Diabetes Prevention Project in Canada. *Social Science & Medicine, 56*, 1295-1305.

Reilly, J. J., Armstrong, J., Dorosty, A. R., Emmett, P. M., Ness, A., Rogers, I., Steer, C., & Sherriff, A. (2005). Early life risk factors for obesity in childhood: Cohort study. *British Medical Journal, 330*, 1357.

Robinson, T. N. (1999). Children's television viewing and obesity prevention. JAMA, 282, 1561-1567.

Rose, D., & Bodor, J. N. (2006). Household food insecurity and overweight status in young school children: results from the Early Childhood Longitudinal Study. *Pediatrics, 117*, 464-473.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63,* 397-428.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55,* 68-78.

Safer, D. L., Agras, W. S., Bryson, S., & Hammer, L. D. (2001). Early body mass index and other anthropometric relationships between parents and children. *International Journal of Obesity, 25*, 1532-1536.

Sallis, J. F., Broyles, S. L., Frank-Spohrer, G., Berry, C. C., Davis, T. B., & Nader, P. R. (1995). Child's home environment in relation to the mother's adiposity.

*International Journal of Obesity, 19*, 190-197.

Salsberry, P. J., & Reagan, P. B. (2005). Dynamics of early childhood overweight. *Pediatrics, 116*, 1329-1338.

Schwartz, M. B., O'Neal Chambliss, H., Brownell, K. D., Blair, S. N., & Billington, C. (2003). Weight bias among health professionals specializing in obesity. *Obesity Research, 11*, 1033-1039.

Shields, M. Overweight and obesity among children and youth. *Health Reports* (Statistics Canada, Catalogue 82-003) 2006; 17, 27-42.

Sparks, A. C. (1992). The paradigms debate: An extended review and a celebration of difference. In A.C. Sparks (Eds.), *Research in physical education* (pp. 6-57). Washington, DC: The Falmer Press.

Spence, J. C., & Lee, R. E. (2003). Toward a comprehensive model of physical activity. *Psychology of Sport and Exercise, 4*, 7-24.

Spruijt-Metz, D., Li, C., Cohen, E., Birch, L., & Goran, M. (2006). Longitudinal influence of mother's child-feeding practices on adiposity in children. *Journal of Pediatrics, 148*, 314-320.

Stein, R. I., Epstein, L. H., Raynor, H. A., Kilanowski, C. K., & Paluch, R. A. (2005). The influence of parenting change on pediatric weight control. *Obesity Research, 13*, 1749-1755.

Strauss, R. S., & Knight, J. (1999). Influence of the home environment on the

development of obesity in children. *Pediatrics, 103*, e85.

Strauss, R. S., Smith, K., Frame, C., & Forehand, R. (1985). Personal and interpersonal characteristics associated with childhood obesity. *Journal of Pediatric Psychology, 10*, 337-343.

Strong, K., Mathers, C., Leeder, S., & Beaglehole, R. (2005). Preventing chronic diseases: How many lives can we save? *Lancet, 366,* 1578-1582.

Stunkard, A. J. Berkowitz, R. I., Schoeller, D., Maislin, G., & Stallings, V. A. (2004). Predictors of body size in the first 2 y of life: A high-risk study of human obesity. *International Journal of Obesity, 29*, 170-175.

Sugimori, H., Yoshida, K., Izuno, T., Miyakawa, M., Suka, M., Sekine, M., Yamagami, T., & Kagamimori, S. (2004). Analysis of factors that influence body mass index from ages 3 to 6 years: A study based on the Toyama cohort study. *Pediatrics International, 46*, 302-310.

Swinburn, B., & Egger, G. (2002). Preventive strategies against weight gain and obesity. *Obesity Reviews, 3*, 289-301.

Swinburn, B., Egger, G., & Raza, F. (1999). Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Preventive Medicine, 29*, 563-570.

Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. New York: Falmer Press.

Thomas, H. (2006). Obesity prevention programs for children and youth: Why are the results so modest? *Health Education Research: Theory and Practice, 21*, 783–795.

Thompson, A. M., Baxter-Jones, A. D. G., Mirwald, R. L. & Bailey, D. A. (2002). Secular trend in the development of fatness during childhood and adolescence. *American Journal of Human Biology. 14*, 669-679.

Thompson, A. M., Campagna, P., Rehman, L., Rehman, L. A., Murphy, R. J., Rene, J. L., Rasmussen, R. L. & Ness, G. W. (2005). A comparison of physical activity levels of students in grades 3, 7, and 11 according to Body Mass Index. *Medicine & Science in Sports & Exercise, 37,* 1902-1908.

Tremblay, M. S., Katzmarzyk, P. T., & Willms, J. D. (2002). Temporal trends in overweight and obesity in Canada, 1981-1996. *International Journal of Obesity, 26,* 538-543.

Tremblay, M. S., & Willms, J. D. (2000). Secular trends in the body mass index of Canadian children. *CMAJ, 163*,1429-1433. Erratum in: *Canadian Medical Association Journal*, 2001, 164, 970.

Veugelers, P. J. & Fitzgerald, A. L. (2005). Prevalence of and risk factors for childhood overweight and obesity. *Canadian Medical Association Journal, 173*, 607-613.

Vogels, N., Posthumus, D. L., Mariman, E. C., Bouwman, F., Kester, A. D., Rump, P., Hornstra, G., & Westerterp-Plantenga, M. S. (2006). Determinants of overweight in a cohort of Dutch children. *American Journal of Clinical*

*Nutrition, 84*, 717-24.

Wang, G., & Dietz, W. H. (2002). Economic burden of obesity in youths aged 6 to 17 years: 1979-1999. *Pediatrics, 109,* E81-81.

Wardle, J., Guthrie, C., Sanderson, S., Birch, L., & Plomin, R. (2001). Food and activity preferences in children of lean and obese parents. *International Journal of Obesity, 25*, 971-977.

Welsh, J. A., Cogswell, M. E., Rogers, S., Rockett, H., Mei, Z., & Grummer-Strawn, L. M. (2005). Overweight among low-income preschool children associated with the consumption of sweet drinks: Missouri, 1999-2002 . *Pediatrics, 115*, e223-229.

White, M. A., Martin, P. D., Newton, R. L., Walden, H. M., York-Crowe, E. E., Gordon, S. T., Ryan, D. H., & Williamson, D. A. (2004). Mediators of weight loss in a family-based intervention presented over the internet. *Obesity Research, 12*, 1050-1059.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M. & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology, 70*, 115-126.

Williams, G. C., Rodin, G. C., Ryan, R. M., Grolnick, W. S., & Deci, E. L. (1998). Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychology, 17*, 269-276.

Willms, J. D., Tremblay, M. S., & Katzmarzyk, P. T. (2003). Geographic and

demographic variation in the prevalence of overweight Canadian children. *Obesity Research, 11*, 668-673.

Wolcott, H. F. (1990). On seeking-and rejecting-validity in qualitative research. In E.W. Eisner & A. Peshkin (Eds.), *Qualitative inquiry in education: The continuing debate* (pp. 121-152). New York: Teachers College Press.

World Health Organization (2002). *World health report: Reducing risks, promoting healthy life.* Geneva.

Wrotniak, B. H., Epstein, L. H., Paluch, R. A., & Roemmich, J. N. (2005). The relationship between parent and child self-reported adherence and weight loss. *Obesity Research, 13,* 1089-1096.

Zametkin, A. J. Zoon, C. K., Klein, H. W., & Munsun, S. (2004). Psychiatric aspects of child and adolescent obesity: A review of the past 10 years. *Journal of American Academy of Child and Adolescent Psychiatry, 43*, 134-150.

Zeller, M. H., Reiter-Purtill, J., Modi, A. C., Gutzwiller, J., Vannatta, K., & Davies, W. H. (2007). Controlled study of critical parent and family factors in the obesigenic environment. *Obesity, 15*, 126-136.

# Appendix A: Correlates of childhood overweight

Table A1

Correlates of Childhood Overweight

| Authors | Year | Age | Sex | PW | CBMI | SES | BW | PA | TV | BF | DT | Race |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Affenito et al. | 2005 | 9 to 10 yrs | F | | | | | | | | | |
| Agras et al. | 2004 | 0 to 9.5 yrs | M/F | P | | | | | | | | |
| Anderson et al. | 2003 | 3 to 11 yrs | M/F | | | | | | | | | |
| Anderson et al. | 2006 | 9 to 11 yrs | F | | | | | | | | | |
| Anderson et al. | 2006 | 9 to 11 yrs | M | | | | | | | | | |
| Ariza et al. | 2004 | 5 to 6 yrs | M/F | | | | | | P | | | |
| Barton et al. | 2005 | 9 to 10 yrs | F | | | | | | | | | |
| Berkowitz et al. | 2005 | 3mo to 6yrs | M/F | P | P | N | | | | | | |
| Brann et al. | 2005 | 8 to 10 yrs | M | | | | | | | | | |
| Burdette et al. | 2006 | 3 to 5 yrs | M/F | | | | | | | N/A | | |

| Authors | Year | Age | Sex | PW | CBMI | SES | BW | PA | TV | BF | DT | Race |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burke et al. (a) | 2005 | 16wk gestation-8yrs | M/F | | P | | | | P | P | | |
| Burke et al. (a) | 2005 | 0 to 8yrs | M/F | | | | | | | | | |
| Burke et al. (b) | 2005 | 16wk gestation-8yrs | M/F | P | | N | P | N | | | | |
| Cameron et al. | 2005 | 2 to 9 yrs | M/F | | | | | | | | | |
| Cecil et al. | 2005 | 4 to 10 yrs | M/F | | | N | | | | | | |
| Classen & Hokayem | 2005 | | M/F | P | | | P | | | | | P[a] |
| Danielzik et al. | 2004 | 5 to 7 yrs | M/F | P | | N | P | N[b] | | | | |
| Datar & Sturm | 2004 | Kindergarten to Gr. 1 | M/F | | | N | | | P | | | |
| Dixon et al. | 2005 | 7 to 10 yrs | M/F | | | | | | | | | |
| Dubois & Gerard | 2006 | 0 to 4.5 yrs | M/F | P | | | | | | | | |
| Dubois et al. | 2006 | 0 to 4.5 yrs | M/F | P | | N | P | | | N | | |
| Fuentes et al. | 2003 | 0 to 7 yrs | M/F | P | N | | | | | | | |

| Authors | Year | Age | Sex | PW | CBMI | SES | BW | PA | TV | BF | DT | Race |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gibson | 2006 | 4.5 to 11.5 yrs | F | P | | N | | | | | | |
| Grummer-Strawn & Mei | 2004 | | M/F | | | | | | | N[c] | | |
| Hesketh et al. | 2004 | 5 to 10 yrs | M/F | P | P | | | | | | | |
| Jago et al. | 2005 | 3 to 6 yrs | M/F | | P | | | N | P | | | |
| Kagamimori et al. | 1999 | 0 to 3 yrs | M/F | | | | | N | | | P[d] | |
| Kim et al. | 2005 | 5 to 13 yrs | M/F | | P | | | | | | | |
| Kim et al. | 2005 | 5 to 13 yrs | M/F | | P | | | | | | | |
| Koepper-Schomenie et al. | 2001 | 0 to 4.5 yrs | M/F | P | | | | | | | | |
| Krahnstoever Davison et al. | 2005 | 9 to 11 yrs | F | | P | | | | P | | P[e] | |

| Authors | Year | Age | Sex | PW | CBMI | SES | BW | PA | TV | BF | DT | Race |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Li et al. | 2005 | | M/F | P | | | | | | N | | |
| Lumeng et al. | 2005 | 3 to 12 yrs | M/F | | | | | | not sig. | | | P[a] |
| Luo & Hu | 2002 | 2 to 6 yrs | M/F | P | P | P | | | | | | |
| Maffeis et al. | 1998 | 8 to 12 yrs | M/F | P | P | P | | N/A | | | N/A | |
| Mamabolo et al. | 2005 | 0 to 3 yrs | M/F | | P | | | | | | | |
| Mamun et al. | 2005 | 0 to 5 yrs | M/F | P | P | N | P | | | N/A | | No |
| Mei et al. | 2003 | 0 to 35mo | M/F | | P | | N | | | | | rel. |
| Muller et al. | 2001 | 5 to 7 yrs | M/F | P | | | | | | | | |
| Newby et al. | 2004 | 2 to 5 yrs | M/F | | | | | | | | | |
| Ong et al. | 2006 | 4mo to 3yrs | M/F | P | P | | | | | N/A | | |
| Reilly et al. | 2005 | 3 to 7 yrs | M/F | | P | | | | P | | | |
| Rose & Bodor | 2006 | 0 to 6 yrs | M/F | | | N | P | N | P[f] | | N[g] | P[a] |

| Authors | Year | Age | Sex | PW | CBMI | SES | BW | PA | TV | BF | DT | Race |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rose & Bodor | 2006 | 0 to Kindergarten | M/F | | | | | N | | | | |
| Safer et al. | 2001 | 0 to 8 yrs | M/F | P | | | P | | | | | |
| Salsberry & Reagan | 2005 | 0 to 7 yrs | M/F | P | | | | | | | | P[a] |
| Spruijt-Metz et al. | 2006 | 9 to 11 yrs | M/F | | | | | | | | | |
| Strauss et al. | 1999 | 0 to 8 yrs | M/F | P | | P | | | | | | P[h] |
| Stunkard et al. | 2004 | 0 to 2 yrs | M/F | N/A | | N | | P[i] | | | P | |
| Sugimori et al. | 2004 | 3 to 6 yrs | M/F | | P | | | N | P | | P | |
| Vogels et al. | 2006 | 0 to 12 yrs | M/F | P | P | | no sig. | N | | no sig. | P[j] | |
| Welsh et al. | 2005 | 2 to 5 yrs | M/F | P | P | N | P | | | | | |

Note: P indicates a positive relationship while N indicates a negative relationship. PW = Parental Weight, CBMI = Child's BMI, SES = Socioeconomic Status, BW = Birth Weight, PA = Physical Activity, TV = Television, BF = Breast Feeding, DT = Diet, N/A = No Association.

[a]Black and Hispanic participants. [b]Female participants only. [c]Caucasian participants only. [d]Snacking Behaviours. [e]Increased %Fat. [f]>2hr/day. [g]Family Meals. [h]Black participants. [i]Total energy expenditure. [j]High focus on diet.

Appendix B: Categories, sub-themes, and rules of inclusion

*Table B1*

Categories, Sub-themes, and Rules of Inclusion

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| Parents lacked the skills and knowledge to promote healthy eating. | This category refers to parents lacking skills and knowledge to promote healthy eating. | Time management | This sub-theme refers to parents not having the time to promote healthy eating. |
| | | Negative Role modeling | This sub-theme refers to parents modeling poor eating habits. |
| Parents lacked the skills and knowledge to promote physical activity | This category refers to parents lacking the skills and knowledge to promote physical activity. | Time management | This sub-theme refers to parents not having the time to promote physical activity. |

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| | | Negative Role modeling | This sub-theme refers to parents modeling poor physical activity behaviour. |
| Parents used extremes of control and leniency around healthy eating. | This category refers to parents' use of controlling or lenient parenting practices around healthy eating. | Food selections | This sub-theme refers to parents control or leniency around children's food selection. |
| | | Portion size | This sub-theme refers to parent's lack of control around children's portion sizes. |

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| Parents used extremes of control and leniency around sedentary behaviours/physical activity | This category refers to parents' use of controlling or lenient parenting practices around sedentary behaviour/physical activity. | Screen time | This sub-theme refers to parent's lack of control around children's screen time. |
| | | Controlling physical activity | This sub-theme refers to parent's control over children's physical activity. |
| Parents' perceptions that children are lacking social support | | Overweight stigma | This sub-theme refers to the parents' belief that their children are treated differently/negatively due to their size. |

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| | | No friends | This sub-theme refers to the parents' belief that their children have no friends. |
| | | Impact of children having no friends on their physical activity | This sub-theme refers to the parents' belief that their children do not participate in physical activity due to a lack of friends. |
| Treatment preferences | This category refers to the parents' weight management treatment preferences for their overweight children. | Better help from health care professionals | This sub-theme refers to parents wanting better help from health care professionals. |

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| | | Needing help from health professionals | This sub-theme refers to parents needing help getting health messages across to their children. |
| | | Increased social support through treatment | This sub-theme refers to parents wanting their children's social support increased through weight management treatment. |
| | | Family-centred treatment | This sub-theme refers to parents wanting weight management treatment as a family. |

| Category | Rule of inclusion | Sub-theme | Rule of inclusion |
|---|---|---|---|
| Support through policies and programs | This category refers to parents wanting support from the government for weight management through policy changes. | Accessible and affordable facilities | This sub-theme refers to parents wanting accessible and affordable facilities for physical activity in the community. |
| | | School system | This sub-theme refers to parents wanting changes to be made to the school system that will improve weight management. |
| | | Food industry | This sub-theme refers to parents wanting healthy eating to be made easier. |

# Appendix C: Information Letters and Consent Forms

Parent Information Letter for Individual Interview


| **Principal Co-Investigator:** | **Principal Co-Investigator:** | **Co-Investigator:** | **Co-Investigator:** |
|---|---|---|---|
| Beverly Moylan<br>Masters Student<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-2004<br>bmoylan@ualberta.ca | Nick Holt, PhD<br>Assistant Professor<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-7386<br>nick.holt@ualberta.ca | John Spence, PhD<br>Associate Professor<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-1379<br>jc.spence@ualberta.ca | Geoff Ball, PhD<br>Assistant Professor<br>Department of Pediatrics<br>Faculty of Medicine<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 407-3784<br>gdball@ualberta.ca |


**Date**

Dear Parent:

My name is Beverly and I am a Masters student at the University of Alberta. I am conducting a research project for my degree under the supervision of Drs. Holt, Spence, and Ball. We would like to invite you to help us with a research project. The purpose of the project is to find out more about parents' (and children's) thoughts and feelings about obesity. We want to know about some of the things you think might be useful for managing obesity better. This information should help us to improve the delivery of services.

We would like to interview you in an office in the Faculty of Physical Education and Recreation at the University of Alberta. We will talk to you (for about one hour) about your thoughts and feelings relating to childhood obesity. We will also ask you about some of the challenges you and your child face, and how you try to help your child manage them. The interview is not a test, and there are no right or wrong answers to these questions. If any question makes you feel uncomfortable, you do not have to provide an answer.

The interview will be tape-recorded, and later someone will type-up your words. We will compare what you said to the things other parents said to see if we can find any themes. About a month after the first interview, we will ask you to help us check that we got everything right. This 'fact-checking' interview will last a maximum of 30 minutes (and will be conducted over the phone).

**Benefits**

We hope that by talking about your experience you will be able to provide useful information that will help us to improve obesity treatment in the future. Also, we hope that by talking to us you will be able to get a few things 'off your chest' and this might make you feel good.

**Risks**

There are no potential physical or psychological risks associated with this study. You do not have to answer any questions that make you feel uncomfortable. You might become upset as a result of talking about your thoughts and feelings. If this happens we can arrange for you to see appropriate counsel. This person will not be connected with our study.

**Confidentiality**

We will not share the information you provide with your children. All information will be held in private, except when professional codes of ethics or the law requires reporting. When your words are typed up, your name will be removed from the file and you will be given an identification number. We will remove any information that gives away your identity. Also, when we do the fact-checking interview, we will give you the chance to remove any information you do not want to be reported. I will create a list of all the participants and all the ID numbers. This list will be stored in a locked filing cabinet in a university office, and only the researchers will have access to the list. When your data has been typed up (and the identifying information removed), only the researchers will have access to the files. Your name will also never be used in any presentations of the study results.

The information gathered for this study may be looked at again in the future to help us answer other study questions. If so, the ethics board will first review the study to ensure the information is used ethically.

**Freedom to Withdraw**

Participating in this study is completely voluntary. That means that you do not have to help us. You only have to help us if you want to. If you do decide to help us, but later change your mind, that is fine. You can withdraw from the study at any time, for any reason, and there are no negative consequences. To withdraw, call or e-mail Nick and your data will be removed from the study.

When we have finished this study, we will present the results at a conference, and write a paper which will be published in an academic journal. When the results are presented, no-one will be identified by name. Data will be kept for five years, post-publication. Before we present these results, we will send you a summary of the findings by mail. If you have any questions about the study, now or at any time in the future, you can contact us at any time.

**Concerns**

If you have concerns or complaints about this study, you may contact Dr. Brian Maraj, who is the Associate Dean (Research) in the Faculty of Physical Education and

Recreation at the University of Alberta (Tel: 492-5910; e-mail: brian.maraj@ualberta.ca). Dr. Maraj has no direct involvement in the study.

Child Information Letter for Individual Interview


| **Principal Co-Investigator:** | **Principal Co-Investigator:** | **Co-Investigator:** | **Co-Investigator:** |
|---|---|---|---|
| Beverly Moylan<br>Masters Student<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-2004<br>bmoylan@ualberta.ca | Nick Holt, PhD<br>Assistant Professor<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-7386<br>nick.holt@ualberta.ca | John Spence, PhD<br>Associate Professor<br>Faculty of Physical Education and Recreation<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 492-1379<br>jc.spence@ualberta.ca | Geoff Ball, PhD<br>Assistant Professor<br>Department of Pediatrics<br>Faculty of Medicine<br>University of Alberta<br>Edmonton, AB T6G 2H9<br>(780) 407-3784<br>gdball@ualberta.ca |


**Date**

Hello!

My name is Beverly and I am a student at the University of Alberta. I am doing research with Drs. Holt, Spence, and Ball. We would like to invite you to help us with a research project. We want to ask you to help us with our research. We are doing a study about things that might help children to manage obesity.

We would like to interview you. The interview will be done in an office at the Faculty of Physical Education. We will ask you about nutrition, physical activity, and your friends. The interview is not a test. There are no right or wrong answers. After the interview will we measure your height and weight. This will take about one hour altogether.

The interview will be tape-recorded. Someone will type-up your words. We will sum up what you said. Later, we will ask you to help us check that we got everything right. We call this a fact checking interview. It will last 30 minutes.

**Benefits**

The information you tell us will help us to improve obesity treatment. Also, we hope that you will be able to get a few things 'off your chest.' This might make you feel good.

**Risks**

There are no potential physical or psychological risks associated with this study. You do not have to answer any questions that make you feel uncomfortable. You might become upset as a result of talking about your thoughts and feelings. If this happens we can arrange for you to see appropriate counsel. This person will not be connected with our study.

**Confidentiality**

We will not share the information you give us with your parents. Information is private, except when professional codes of ethics or the law requires reporting. Your name will be removed from your file. We will remove other information that identifies you. We will give you an identification number. A list with names and identification numbers will be stored in Nick's office. Only Nick, John, and Geoff will have access to the data. You can remove any information you do not want to be reported.

We might look at the information you provide us again in the future. Is this happens, our ethics board will first review the study to ensure the information is used ethically.

**Freedom to Withdraw**

Helping us with this study is voluntary. That means that you do not have to help us. You can withdraw from the study at any time. There are no negative outcomes. Just have to call or e-mail Nick and your data will be removed.

We will present the results of this study at a conference. Then we publish the study in a journal. No-one will be identified by name. Data will be kept for five years. We will send you a summary of the findings by mail. If you have any questions you can contact Nick, John, or Geoff.

**Concerns**

If you have concerns or complaints about this study, you may contact Dr. Brian Maraj, who is the Associate Dean (Research) in the Faculty of Physical Education and Recreation at the University of Alberta (Tel: 492-5910; e-mail: brian.maraj@ualberta.ca). Dr. Maraj has no direct involvement in the study.

Consent Form

| *Title of Project: Familial Perceptions of and Attitudes Toward Childhood Obesity* | | |
|---|---|---|
| **Part 1: Researcher Information** | | |
| Name of Principal Co-Investigator: Beverly Moylan<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-2004, bmoylan@ualberta.ca | | |
| Name of Principal Co-Investigator: Dr. Nick Holt<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-7386, nick.holt@ualberta.ca | | |
| Name of Co-Investigator: Dr. John Spence<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-1379, jc.spence@ualberta.ca | | |
| Name of Co-Investigator: Dr. Geoff Ball<br>Affiliation: Department of Pediatrics, Faculty of Medicine, University of Alberta<br>Contact Information: (780) 407-3784, gdball@ualberta.ca | | |
| **Part 2: Consent of Subject** | | |
| | **Yes** | **No** |
| Do you understand that you have been asked to be in a research study? | | |
| Have you read and received a copy of the attached information sheet? | | |
| Do you understand the benefits and risks involved in taking part in this research study? | | |
| Have you had an opportunity to ask questions and discuss the study? | | |
| Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your care. | | |
| Has the issue of confidentiality been explained to you? Do you understand who will have access to your records/information? | | |
| **Part 3: Signatures** | | |
| This study was explained to me by: _____<br>Date: _____ | | |
| *I agree to take part in this study.*<br>Signature of Research Participant: _____<br>Printed Name: _____ | | |
| Witness (if available): _____<br>Printed Name: _____ | | |
| I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.<br>Researcher: _____<br>Printed Name: _____ | | |
| * A copy of this consent form must be given to the subject. | | |

Consent Form

| *Title of Project: Familial Perceptions of and Attitudes Toward Childhood Obesity* | | |
|---|---|---|
| **Part 1: Researcher Information** | | |
| Name of Principal Co-Investigator: Beverly Moylan<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-2004, bmoylan@ualberta.ca | | |
| Name of Principal Co-Investigator: Dr. Nick Holt<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-7386, nick.holt@ualberta.ca | | |
| Name of Co-Investigator: Dr. John Spence<br>Affiliation: Faculty of Physical Education and Recreation, University of Alberta<br>Contact Information: (780) 492-1379, jc.spence@ualberta.ca | | |
| Name of Co-Investigator: Dr. Geoff Ball<br>Affiliation: Department of Pediatrics, Faculty of Medicine, University of Alberta<br>Contact Information: (780) 407-3784, gdball@ualberta.ca | | |
| **Part 2: Consent of Subject** | | |
| | **Yes** | **No** |
| Do you understand that you have been asked to be in a research study? | | |
| Have you read and received a copy of the attached information sheet? | | |
| Do you understand the benefits and risks involved in taking part in this research study? | | |
| Have you had an opportunity to ask questions and discuss the study? | | |
| Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your care. | | |
| Has the issue of confidentiality been explained to you? Do you understand who will have access to your records/information? | | |
| **Part 3: Signatures** | | |
| This study was explained to me by: _____<br>Date: _____ | | |
| *I agree THAT MY CHILD,_____, may take part in this study.*<br>Signature of Research Participant: _____<br>Printed Name: _____ | | |
| Witness (if available): _____<br>Printed Name: _____ | | |
| I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.<br>Researcher: _____<br>Printed Name: _____ | | |
| * A copy of this consent form must be given to the subject. | | |

# Appendix D: Parent Interview Guide

Parent Individual Interview Questions

**[Start recording]**

Purpose of Interview

***"The purpose of this interview is to understand more about things that will help children manage their weight. There are no right or wrong answers to these questions. I am interested in your own experiences."***

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1. **Family/peer support/communication/involvement in treatment**
   - Have you or other members of your family ever been involved or helped your child with managing their weight? Can you tell me about this?
   - Have your child's friends ever been involved or helped your child with managing their weight? Can you tell me about this?

2. **Increase vegetable and fruit intake**
   - If your child wanted to eat healthier, what would he/she do?
   - If I wanted your child to eat at least 5 vegetables and fruits everyday, how could I get him/her to do that? Is there anything at all that I could do to encourage him/her?

3. **Increase – steps per day**
   - If your child wanted to do more , what would he/she do?
   - If I wanted your child to walk for about 30 minutes (or 1 km) everyday, how could I get him/her to do that? Is there anything at all that I could do to encourage him/her?

4. **Individual vs. group/preferences of meeting with a health professional**
   - Has your child ever met with an individual (one person/health professional) to help manage their weight? If yes, ask "Tell me about what happened."
   - Has anyone ever suggested or tried to help your child lose weight? If yes, ask "Tell me about what happened."

5. **Decrease sedentary activity - screen time**
   - How many different types of screens does your child spend time watching? (TV, computer, video game, text messaging, videos, etc.) How much time would you say your child spends watching a screen? (Ask them how much time their child spends watching a screen before school, during school, after school and in the evening, after supper.) Is the amount of time spent watching screens different on weekends and school days?
   - I would like you to use your imagination for this question. If you woke up one morning and all of the screens in your house disappeared (TV, video games, computers, phone, etc.) what do you think your child would do instead of watching the screens?

- If I wanted your child to cut down on screen time by about 1.5 hours per day, how could I get him/her to do that? Is there anything at all that I could do to encourage him/her?

6. **Experiences with food and cooking**
   - Has your child ever cooked or helped cook food before? Can you tell me about that experience? What kind of foods has your child cooked or helped cook?
     - *PROBE:* Does your child enjoy preparing or cooking meals? If so, what do they like about it? If not, what don't they like about it?

7. **Eating and activity cues**
   - Are there any times during the day that your child snacks?
     - *PROBE:* Tell me about these times…
   - Are there any times during the day when your child is really active?
     - *PROBE:* Tell me about these times….

8. **Coping with stress – bullying, teasing, etc.**
   - This is a hypothetical question. If there was an overweight boy or girl in the hallway (or in the playground) at your child's school who was being teased and bullied, what do you think would be the best way for them to deal with the situation?

9. **Improving self-esteem**
   - What are some things that your child really likes about him/herself?
     - *PROBE:* Tell me more about [the qualities].
   - If your child could change anything about him/herself, what do you think it would be?
     - *PROBE:* Tell me more about [the negatives].

**SUMMARY: Capture other ideas or treatment preferences they may have.**
- Imagine you knew a child who wanted to lose weight and stay healthy. What advice would you give to his or her parents?
- Is there anything you can think of that would make it easier for that child to lose weight and stay healthy?

Appendix E: Data matrix

Table E1

Data matrix of participants' responses

| Category | Sub-theme | Participant # 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Promote Healthy Eating | Time Mgmt | | | ✔ | | | | ✔ | | | | | ✔ | | | ✔ | | ✔ | | | |
| | Negative Role Modeling | | | | | | | | | | | ✔ | ✔ | | | | ✔ | | ✔ | ✔ | |
| Promote PA | Time Mgmt | | | ✔ | ✔ | | | ✔ | | | | ✔ | ✔ | | | ✔ | | ✔ | | ✔ | |
| | Negative Role Modeling | ✔ | | ✔ | | | | ✔ | | | | ✔ | ✔ | | | | ✔ | | ✔ | ✔ | ✔ |

| Category | Sub-theme | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Extremes of Control and Leniency Around Healthy Eating. | Food Selections | ✔ | | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| | Portion Size | | | | | ✔ | | ✔ | | | ✔ | | | | ✔ | | ✔ | ✔ | ✔ | ✔ | |
| Extremes of Control and Leniency Around Sedentary Behaviours/PA | Screen Time | | | | | ✔ | | ✔ | ✔ | | ✔ | ✔ | | | | | | ✔ | ✔ | ✔ | ✔ |
| | Controlling PA | ✔ | | | ✔ | | | | ✔ | | | | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | |
| Children are Lacking Social Support | Overweight Stigma/Bias | ✔ | | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| | No Friends | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | | ✔ | | ✔ | |
| | Impact on PA | | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | | | ✔ | ✔ | | | | ✔ | ✔ | | | |

| Category | Sub-theme | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Treatment Preferences | Better Help | ✔ | | ✔ | ✔ | ✔ | ✔ | | ✔ | | ✔ | | ✔ | ✔ | | ✔ | ✔ | ✔ | | ✔ | |
| | Needing Help | | | ✔ | | ✔ | | | | | ✔ | | | | | ✔ | | | ✔ | ✔ | |
| | Increased Social Support | ✔ | | | | ✔ | | | | | ✔ | | | | | ✔ | | ✔ | | ✔ | |
| | Family-Centred | ✔ | | | ✔ | | | | ✔ | | ✔ | ✔ | ✔ | ✔ | | ✔ | | | ✔ | ✔ | |
| Policies and Programs | Accessible and Affordable | ✔ | | ✔ | | | ✔ | | ✔ | | | | | | | ✔ | ✔ | | | | ✔ |
| | School System | ✔ | | ✔ | ✔ | ✔ | | | ✔ | | | | | | ✔ | | | | | | ✔ |
| | Food Industry | ✔ | | | | | | | ✔ | | | | | | | ✔ | | ✔ | | | ✔ |

Note: Abbreviations have been used for categories and sub-themes. Refer to Table B1 for full descriptions. Participant # 11 represents the combined results of both the mother and father of child #11 because their responses were often intertwined.